

APPENDIX TO THE REPORT OF THE MINISTER OF AGRICULTURE

---

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

FISCAL YEAR ENDING MARCH 31,

1910

---

Introduction.

Part I.—Dairying.

Part II.—Extension of Markets.

Part III.—Fruit.

Part IV.—Cold Storage.

---

*PRINTED BY ORDER OF PARLIAMENT*



OTTAWA

PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST  
EXCELLENT MAJESTY

1910







**CONTENTS.**

**REPORT.**

	PAGE.
Work of the Branch—Meetings—Publications—the Staff—Acknowledgments.	3

**PART I.—DAIRYING.**

Season of 1909—Official Referee of Butter and Cheese—Milk Test Glassware—Exports of Canadian Cheese and Butter—Report of Assistant Dairy Commissioner—Cow Testing Movement—Experiments in Cooling and Non-aeration of Milk.. . . .	13
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----

**PART II.—EXTENSION OF MARKETS.**

Cargo Inspection—Price Investigations—Export Butter Trade—Export Cheese Trade—Export Fruit Trade—Reports of Cargo Inspectors in Great Britain—Butter Transportation—Acknowledgments.. . . .	85
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----

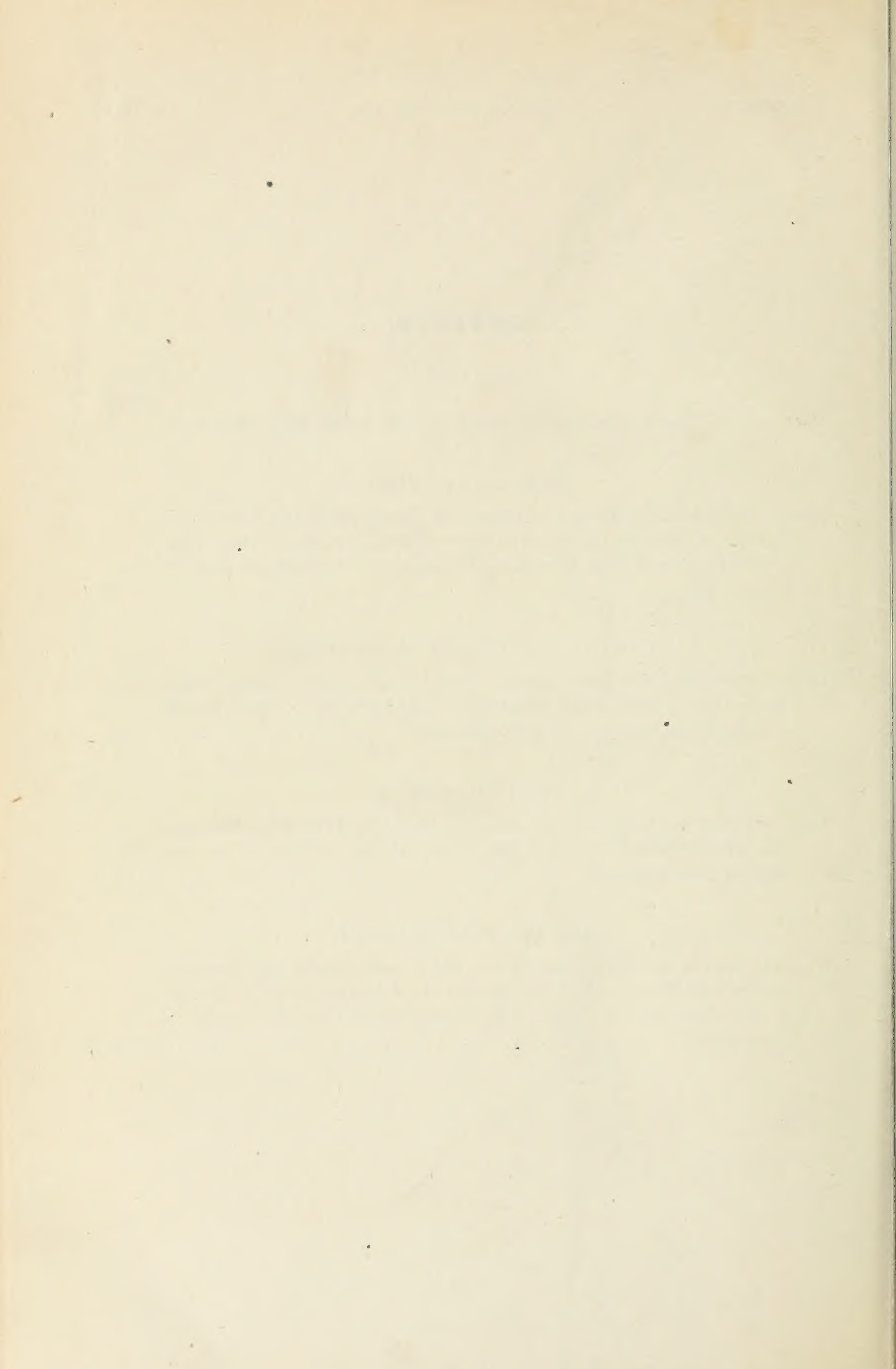
**PART III.—FRUIT.**

Enforcement of the Inspection and Sale Act, Part IX.—Fruit Crop Reports—Evaporated Apples—Fruit Meetings—Apple Growing in Nova Scotia—Box Packing Demonstrations.. . . .	127
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----

**PART IV.—COLD STORAGE.**

The Cold Storage Industry—Subsidies for Cold Storage Warehouses—Creamery Cold Storage Bonuses—Iced Car Services—Cold Storage Chambers Reserved on Steamships for Fruit—Cold Storage and Cooled Air Space on Steamships.. . . .	145
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----







APPENDIX

TO THE

REPORT OF THE MINISTER OF AGRICULTURE

BEING THE

REPORT OF THE DAIRY AND COLD STORAGE  
COMMISSIONER.

---

OTTAWA, March 31, 1910.

To the Honourable,  
The Minister of Agriculture.

SIR,—I have the honour to submit my report as Dairy and Cold Storage Commissioner in your department for the year ended March 31, 1910. The detailed report is presented under four heads, namely:—

- Part I. Dairying.
- Part II. Extension of Markets.
- Part III. Fruit.
- Part IV. Cold Storage.

These four divisions correspond to the different lines of work which I have the honour to supervise as the head of this branch of your department.

I am fortunate in having the assistance of competent chiefs for the divisions of 'Markets,' 'Fruit' and 'Dairying.' These officers have given their undivided attention to the details of their respective divisions.

DAIRYING.

Mr. J. C. Chapais, Assistant Dairy Commissioner, paid a visit to Manitoba in June last and addressed a series of meetings for the benefit of the French speaking farmers of that province. He also attended meetings in Ontario in places where it was necessary to give addresses in the French language. The rest of Mr. Chapais' time was spent in the province of Quebec. The details of his work are presented in the report which he has prepared and which will be found in Part I.

The experiments in the care and cooling of milk for cheesemaking were continued during the summer of 1909, and the results confirmed in every respect the conclusions drawn from the previous season's work. Full details of these experiments as furnished by Mr. Barr, who had charge of the work, will be found in Part I, at page 72. A



1 GEORGE V., A. 1911

summary of the results and the recommendations based thereon have been published as Bulletin No. 22, for which there has been an extraordinary demand since it was first available.

Mr. Whitley has gathered some very illuminating figures from the records of the cow testing associations for 1909. Attention is especially directed to the testimony of members who have increased the average yield from their cows as much as 20 or 30 per cent by making only two or three selections. The number of associations has been increased during the year, but probably the most satisfactory result of our propaganda is to be found in the fact that hundreds of individual farmers have applied for the record forms in order to begin the work of testing on their own account.

An officer of this branch was again stationed at Montreal to act as Official Referee of Butter and Cheese. There was so little demand for his services that I would recommend that the position should not be refilled at present.

The Inspector of Dairy Products has visited different parts of the country during the year, and I am pleased to report that he has not found any serious violations of the dairy laws.

#### EXTENSION OF MARKETS.

It may appear at first glance to those who read Part II and note the kind of work that is being done through the Extension of Markets Division, that it might more properly be designated as the 'Inspection' Division. It is true that the cargo inspection at Canadian and Old Country ports and the refrigerator car inspection in Canada do constitute the chief outside services of this division, but the office has a large amount of correspondence with Canadian exporters and foreign importers of Canadian farm produce, conducted with a view of improving and extending the trade therein. Moreover, the object of the inspection services is to secure the proper handling of perishable products from producer to consumer in order that they may be delivered in the best possible condition, and there is no surer way of extending the market for any product.

The writer finds it difficult to place the work of this division before the public in its true light, or in such a manner as to give a fair impression of its scope, importance and usefulness, without going into details which would, if cited singly, appear rather trifling. The work of the staff is largely of a routine nature, watching the shipment of produce at all points and taking careful notes as to condition of packages, temperatures, &c., as well as to the methods of handling which may affect either the appearance or the quality of the goods. The complete system of inspection enables us to place the responsibility where it belongs if any injury occurs in transit. A glance at the records obtained by the inspectors, as given in Part II, will furnish some idea of the extent of the work and how beneficial it may be to the trade in perishable products.

#### FRUIT.

The enforcement of Part IX of the Inspection and Sale Act, generally known as 'The Fruit Marks Act,' and the publication of a monthly Fruit Crop Report from May to September, are the two principal lines of work relating to fruit which have been assigned to this branch, but the system of cargo inspection and much of the cold storage work relate to fruit as well as other produce.



## SESSIONAL PAPER No. 15a

Mr. A. McNeill, Chief of the Fruit Division, has been assisted by a staff of twelve permanent and fifteen temporary fruit inspectors. The temporary men are employed for periods varying from four to six months. Three permanent and two temporary inspectors were added to the staff during the year. A re-arrangement of the location of the inspectors in 1909 provided for three additional inspectors in the prairie provinces and one additional inspector in British Columbia.

The services of the permanent fruit inspectors are utilized during the 'off' season in attending fruit meetings and taking part in orchard demonstrations in the various fruit districts. The work done by the inspectors in this connection has been very effective in promoting better orchard methods.

By your authority, Mr. Frederick G. Earl, son of the well known veteran fruit grower, Mr. Thomas Earl, of Lytton, B.C., was engaged for three months last autumn to give demonstrations in the box packing of apples at various points in Ontario and in the maritime provinces. Mr. Earl's services were very satisfactory in this connection.

The practice of packing choice dessert apples in boxes is growing and there has been a marked improvement in the work of the Ontario packers in recent years. It is a fair assumption to say that this result is due in part, at least, to the instructions which have been given by the experts who have been employed for that purpose by this branch.

I regret to report an increase in the number of convictions under the Inspection and Sale Act, for improper marking and packing of apples. The increase may be attributed in part to a more rigid enforcement of the Act, but chiefly to the peculiarities of the season and the abnormal market conditions. The high prices prevailing about the time the apple crop was being harvested induced growers and packers to put up a large quantity of inferior fruit. In some sections the average grade of the crop was rather low, because many of the varieties were small in size and rather lacking in colour.

The information from which the fruit crop reports are compiled is collected with great care, and every possible means is taken to insure accuracy. A fruit crop report, especially in relation to apples, can never be quite as accurate, in one sense, as reports regarding other crops, for the reason that the total quantity grown is not an absolute criterion of the actual quantity that will be marketed. With almost any other crop all that is grown will be offered for sale, but with apples a great deal depends upon the condition of the market. If the price is low, a larger quantity is allowed to go to waste, and farmers with a few trees are not induced to pack for market, as they are when the price is high. Weather conditions affecting the size of the apples also have considerable influence on the actual quantity of apples harvested.

Mr. McNeill has prepared a report of the Fruit Division, in which the details of the season's work will be found.

## COLD STORAGE.

The work of the Cold Storage Division, which receives my personal attention, has grown considerably during the year. The number of applications for the subsidy payable under the Cold Storage Act was larger than in any previous year. Much travelling was involved in making the necessary inspections of warehouses.



1 GEORGE V., A. 1911

The bonus of \$100 for the erection of cold storages at creameries is still paid in cases where the construction is up to the standard specification. An inspection is made in each case before the bonus is paid. Mr. J. G. Bouchard attends to the inspection of creamery cold storages along with other duties. The names of the creameries that received the bonus in 1909-10, and other information concerning the matter, will be found in Part IV.

The usual iced car services have been operated during the year. The arrangement put into effect in 1908, providing for the reservation of cold storage chambers for the carriage of fruit on certain steamships sailing from Montreal, was again carried out in 1909. It is hoped by this means to encourage the shipment of early apples, pears and peaches to Great Britain by making it possible for shippers of small lots to co-operate in the filling of a cold storage chamber.

The money voted by Parliament for the purpose of conducting experiments in the cold storage of apples was partly used in the purchase of seven carloads of winter apples at different points in Ontario. They were cold-stored at London, Montreal and St. John, N.B. As the apples are not yet all disposed of, particulars of the experiments cannot be given in this report, but will be published in a special bulletin as soon as the information is available.

A plan has been prepared for a fruit cold storage to be equipped with mechanical refrigeration. Blue prints are now available for distribution.

Plans for cheese factories with cool curing rooms and creamery cold storage plans are still distributed to those who apply for them.

#### MEETINGS.

During the winter months the chief officers of this branch have spent a good part of their time in attending dairy and fruit meetings in the several provinces. The annual conventions of the provincial dairymen's associations and the provincial fruit growers' associations have been addressed in most cases by one or two and sometimes by three members of the staff. A very large number of special dairy meetings were attended during the months of December, February, March and April. The topics discussed at these meetings include 'The Cool Curing of Cheese,' 'The Improvement of Dairy Herds by Testing Individual Cows,' 'The Care of Milk for Cheesemaking,' and other similar topics. The use of lantern slides to illustrate addresses has proved very satisfactory. Mr. Barr has met with marked success in presenting in this manner the results of the experiments in the care of milk for cheesemaking (page 72).

The services of the permanent fruit inspectors have been utilized to good advantage by holding special fruit meetings and orchard demonstrations during the months of April, May and June. The demonstrations include spraying, pruning, grafting, &c. In Nova Scotia, the inspectors have assisted in the campaign for the eradication of the Brown Tail moth.

The total number of meetings attended and addressed by members of the staff during the year was 424. The organization and advertising of these meetings have, in most cases, been done in this office.



SESSIONAL PAPER No. 15a

## PUBLICATIONS.

Bulletins No. 22, 'The Cooling of Milk for Cheesemaking,' and No. 23, 'Cold Storage and the Cold Storage Act,' the monthly Fruit Crop Reports (May to September), and a plan for a small fruit cold storage to be equipped with mechanical refrigeration, constitute the publications of this branch for the year. All these publications are now available for distribution.

## THE STAFF.

The staff whose work it is my privilege and pleasure to direct, consisted in 1909-10 of seventy-five persons of all ranks, as follows:—

*Technical—*

- 1 Assistant Dairy Commissioner.
- 3 chiefs of divisions.
- 1 chief fruit inspector.
- 26 fruit inspectors.\*
- 6 assistants in dairying.
- 1 inspector of dairy products.
- 1 official referee of butter and cheese.
- 2 chief cargo inspectors.
- 12 cargo inspectors.†
- 3 refrigerator car inspectors.

*Clerical—*

- 1 secretary to the Commissioner.
- 5 stenographers.
- 11 clerks.
- 2 messengers.

—

75

Of this staff twenty-six persons are located at Ottawa and belong to the 'inside service.' The other forty-nine are in the 'outside service.' The Assistant Dairy Commissioner resides at St. Denis (en bas), Que. One chief cargo inspector, Mr. A. W. Grindley, is located at Liverpool, and the other, Mr. Wm. Macfarlane, is in charge of the Montreal office of this branch. Four cargo inspectors are employed permanently in Great Britain. The other cargo inspectors are located at Montreal during the season of navigation, and one is sent to Halifax during the winter months. The iced car inspectors travel over the routes followed by these cars. The Chief Fruit Inspector, Mr. M. R. Baker, resides at Ottawa, and is a member of the inside service. The other fruit inspectors are located at different points throughout the country.

Of the assistants in dairying, Messrs. C. F. Whitley, in charge of Dairy Records, J. G. Bouchard and I. Trudel reside at Ottawa; Mr. Jos. Burgess, assistant for Ontario, resides at Woodstock, Ont.; Mr. Harvey Mitchell, assistant for the maritime provinces, at Fredericton, N.B., and Mr. J. N. Lemieux, assistant for Quebec, at St.

---

\* Fifteen fruit inspectors are employed only during part of the year.

† Eight cargo inspectors are employed only during the period of navigation at Montreal.



1 GEORGE V., A. 1911

Hyacinthe, Que. Mr. Lemieux also acts as refrigerator car inspector for a part of the year.

When the writer was first appointed to the staff of the Dairy Commissioner, on April 6, 1891, it consisted of the Dairy Commissioner, Professor James W. Robertson, the Assistant Dairy Commissioner, Mr. J. C. Chapais, and a stenographer. Other dairy experts, to the number of eight, were appointed later during the year. I quote from the annual report of the Dairy Commissioner for the year ended April 30, 1892, as follows:—

I was fortunate in securing the services of some of the most capable, energetic and trustworthy men who were available. Messrs. J. A. Ruddick, T. J. Dillon, John Robertson, J. B. McEwan, C. C. Macdonald, C. F. Whitley and J. W. Wheaton were engaged. Their reports upon the work which was entrusted to their care are included in this volume. Mr. J. W. Hart was engaged as an expert butter maker, to give general assistance in experimental dairy work at the Central Experimental Farm and at the branch Experimental Dairy Stations.

Few people outside of the department realize the enormous growth of the routine work which has resulted from the increase in the staff and the enlarged scope of their operations during these years.

When the 'Dairy' branch was established by the appointment of a Dairy Commissioner in 1890, the only other agricultural work carried on by the department was that undertaken by the Experimental Farms Branch. The work of the branch related almost wholly to dairying for the first eight or nine years of its existence. In 1899, the first move towards expansion was made by the appointment of a Live Stock Commissioner, who was responsible to the Dairy and Agricultural Commissioner, as the head of the branch was then styled. In 1900, the Dairy Division was organized, when the writer was invited to return from New Zealand to assume the position of chief of that division. In 1901, four divisions were recognized, namely, Dairying, Live Stock, Extension of Markets and Cold Storage. During the following year the divisions of Fruit, Poultry and Seed were added, thus covering, with the Experimental Farms Branch, practically the whole range of Canadian agriculture. The branch was continued with these divisions until the end of 1904, when Dr. Robertson resigned his position in the public service and a reorganization was effected. The Live Stock and Poultry Divisions were made into a separate branch and the Seed Division was raised to the status of a branch, leaving the divisions of Dairying, Fruit, Extension of Markets and Cold Storage in the original branch.

The inauguration of new lines of work naturally attracted much attention from the farming interests and the public generally, and it was fortunate for the department and for the country that during these formative years the services of a man so eminently fitted for that kind of work as Professor James W. Robertson were available. It is desirable, however, that the difference should be recognized between the work of organization and the routine work which organization involves, and which is not only important, but absolutely necessary if real results are to follow the initiation of important movements.

These things have been referred to because there has been some tendency of late years, on the part of people who do not understand the situation, to attribute the



SESSIONAL PAPER No. 15a

change in the character of our work to a lack of progressiveness in some respects. They overlook the fact that organization must be followed by careful and persistent work, with much repetition; otherwise, there is often no result. The announcement of a new policy attracts much more attention than the daily grind which gives effect to that policy. There is little use in straining after too many new things while there remains so much room for improvement along the old lines.

The writer's appointment as Dairy Commissioner dated from January 1, 1905, and a year later it was changed to that of Dairy and Cold Storage Commissioner. This title does not accurately represent the duties of the office, because there is no reference to the Fruit and Extension of Markets Divisions, which occupy exactly the same status in the branch as do the divisions of Dairying and Cold Storage. It seemed, however, to be the best possible designation that could be suggested.

## ACKNOWLEDGMENTS.

I am pleased to record once more my high appreciation of the services rendered by members of the staff. The general record for punctuality, diligence and devotion to the work of the office is excellent. I am especially indebted to Mr. W. W. Moore, Chief of the Markets Division; Mr. A. McNeill, Chief of the Fruit Division, and Mr. Geo. H. Barr, Chief of the Dairy Division, for valuable assistance and loyal support in carrying on the work of the office. To these officers and to Mr. J. C. Chapais and Mr. C. F. Whitley, I am indebted for a large share of the work of preparing this report. The outside officers have been diligent and faithful in the discharge of their various duties.

I have to acknowledge kindly co-operation and assistance from the Division of Chemistry, of the Experimental Farms Branch, in connection with matters of a chemical nature.

Acknowledgment is also due the Department of Inland Revenue for analyses made in connection with the administration of the Butter Act of 1903, and to the Department of Public Works for draughting in plans for fruit cold storages.

J. A. RUDDICK,  
*Dairy and Cold Storage Commissioner.*

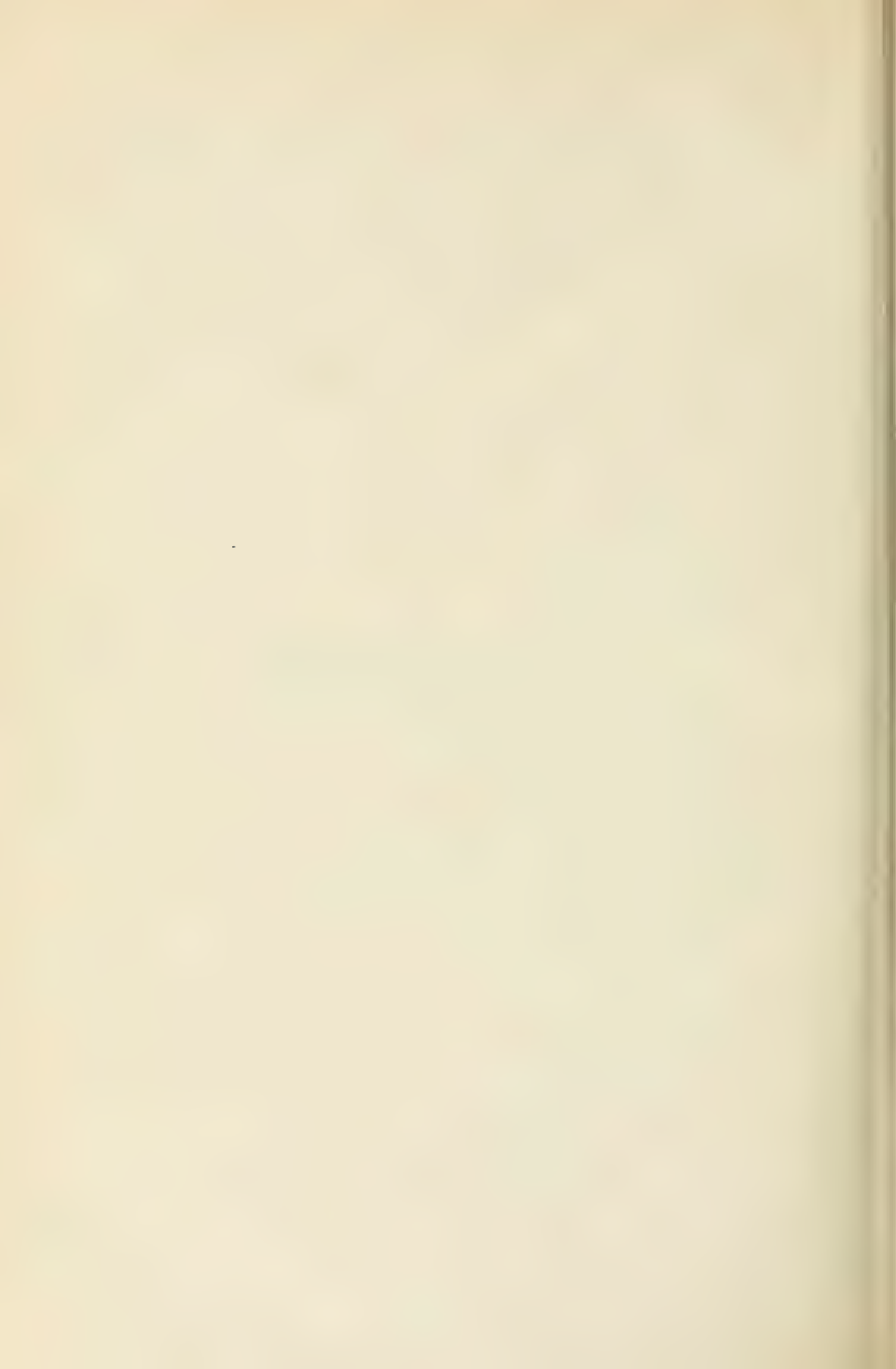






## PART I.—DAIRYING







PART I—DAIRYING.

THE SEASON OF 1909.

The season of 1909, which this report covers, presented no very marked features. The weather conditions were more favourable for production on the whole than they were in 1908, but the grass was very late in coming and the season somewhat shortened on that account.

The total exports for the fiscal year show an increase in the value of dairy products exported amounting to \$1,262,716, as follows:

VALUE OF DAIRY PRODUCTS EXPORTED, YEARS ENDED MARCH 31ST.		
	1909.	1910.
Condensed milk and cream.....	\$ 90,520	\$ 541,372
Butter.....	1,521,436	1,010,274
Cheese.....	20,384,666	21,607,692
Totals.....	\$21,996,622	\$23,159,338

If the value represented by the increase in home consumption is added to the increase in the exports, it will show a decided increase in the milk production for the year just ended.

VOLUME AND INCREASE OF HOME CONSUMPTION.

Few people seem to realize the importance or the extent of the consumption of dairy products in Canada. After a careful study of the matter, the annual consumption of milk, cream, butter, cheese and condensed milk is placed at \$10 per capita, and that is believed to be a conservative estimate. On this basis, the value of dairy products consumed in the year under review must have been nearly \$3,000,000 greater than it was in the previous year, or \$22,000,000 more than it was in 1901. On the same basis, the total consumption of these products during the year would amount to \$75,000,000. If we add to these figures the value of the exports, including cream, cheese and butter, during the year, which amounted to \$23,159,338, we have the enormous sum of \$98,000,00 as the probable total value of dairy production in Canada for the year.

MERE VOLUME NOT THE MOST IMPORTANT THING.

Canadian dairymen must be careful, however, not to allow a natural pride in the aggregate of their production to interfere with a full appreciation of the importance of individual achievement. There is some danger in a big country like Canada that the attractiveness of large figures may detract from the interest that should be directed to the details, which are of greater importance. The total quantity produced means very little. It is the amount produced per cow, or per acre of land devoted to dairying, which should receive most attention.

THE NEW ZEALAND COMPETITION.

Shipments of cheese from New Zealand to Great Britain are still increasing. It seems probable that the figures for the New Zealand season of 1909-10, when com-



1 GEORGE V., A. 1911

pleted, will show a gain of 25 per cent, or something like 10,000,000 pounds over 1908-09.

It is satisfactory to note that the prices quoted for old Canadian and New Zealand cheese in Great Britain have shown a greater difference in favour of Canadian than for some years past.

If the present market conditions continue, there will be a tendency in New Zealand to turn the milk into butter instead of cheese.

#### THE EXPORT OF CREAM TO THE UNITED STATES.

Probably the most unusual feature of the season of 1909 was the inauguration of the shipment of cream to the United States. In the recent adjustment of the United States tariff the duty on cream was reduced from 2 cents a pound to 5 cents a gallon, and the duty on butter remains as it was, at 6 cents per pound. The duty on very rich cream amounts to about  $1\frac{1}{4}$  cents per pound of butter. With the price of butter in the United States 4 or 5 cents a pound higher than it is in Canada, there is considerable margin for profit. In some cases the United States importers have dealt only with the factories, where the milk is received in the usual way and the cream separated from it. In other localities they have been dealing with the farmers direct, thus depriving the factory of its patronage. On the whole, the trade is not a desirable one from the Canadian standpoint. The individual producer who receives a higher return for his milk than he could get for it if it were made into butter or cheese on this side, will be satisfied as long as that condition continues, but the moment that a change in prices makes the trade unprofitable the market will be gone and the disorganization of the cheese factories and creameries will then be seriously felt.

The total amount of cream exported during the year ended March 31, 1910, was 2,362,221 pounds, valued at \$220,446. As the cream is made very rich, this quantity represents over 1,000,000 pounds of butter. In some instances, representatives of United States establishments have offered contracts for the cream and also for casein made from skim-milk.

#### THE DEMAND FOR CASEIN.

The demand for casein in the United States has increased very largely during the year, although there has not been any material advance in price. The price varies according to the manner in which the casein is prepared, or to what extent the drying process is carried. The gross returns per 100 pounds of skim-milk vary from 20 to 22 cents. The process of making casein, which is really kiln-dried curd, leaves the whey for feeding purposes. It is claimed that the necessary plant for making casein (curd, dried, but not powdered) in addition to a cheese factory outfit, can be installed for \$125. The vats are used for curdling the milk, and the presses for expelling the free moisture. The additional apparatus required consists of a dryer, or evaporating chamber. If casein is made at a creamery, the vats and presses will have to be provided.

#### INCREASED PRODUCTION IN PRINCE EDWARD ISLAND.

It is very gratifying to be able to report an increase of 30 per cent in the shipments of cheese from Prince Edward Island. There is a decided revival of interest in dairying in the island province and the business is being placed on a firmer and more profitable basis. More attention is being paid to the character of the cows which are kept, and the question of herd improvement is receiving considerable attention. Mr. Harvey Mitchell, dairy expert for this branch in the maritime provinces, has spent considerable time on the island to good purpose.

#### INCREASED PRODUCTION IN WESTERN PROVINCES.

The small number of creameries and cheese factories in the western provinces makes it possible to secure accurate returns of the annual production through the



## SESSIONAL PAPER No. 15a

officials of the provincial Departments of Agriculture, who are in close personal touch with each establishment.

A considerable increase in both cheese and butter production is reported from Manitoba.

The output of creamery butter shows an increase of over 50 per cent in Saskatchewan during the year. There are no cheese factories in Saskatchewan, but a large quantity of dairy butter is made on farms.

The creameries in Alberta also increased their output. There are now in that province over fifty creameries and eight or ten small cheese factories.

The business of dairying continues to expand also in British Columbia. There are 20 creameries, but no cheese factories.

## WESTERN PRODUCTION NOT SUFFICIENT FOR LOCAL MARKETS.

The large increase in production west of Lake Superior is not sufficient to meet the increased demand in that part of the country, and heavy shipments of butter and cheese are being made from Ontario and Quebec to supply the shortage.

## THE OFFICIAL REFEREE OF BUTTER AND CHEESE AT MONTREAL.

During every season since the year 1900, except in 1906, an officer of this branch has been stationed at Montreal to act as Official Referee of Butter and Cheese in cases of dispute between the buyer and seller as to the quality of cheese or butter sold subject to Montreal inspection.

The office was created at the urgent request of the salesmen in the several districts interested. Many salesmen believed that they were being unfairly treated by the Montreal merchants in the matter of claims for alleged inferior quality of butter and cheese, and they believe that the referee would save them very many, if not all, rejections of this kind. Their expectations have not been realized, for the simple reason that the referee is not called in unless there is some real defect in the butter or cheese in question. Because the referee was obliged to confirm the judgment of the buyer in most cases, many of the salesmen have concluded, rightly or wrongly, that the referee is of no advantage to them. The presence of the referee has, no doubt, prevented unfair claims from being made at times, but, on the other hand, the buyers were inclined to make use of the referee's certificate to relieve them of the onus of pronouncing against the quality of the goods.

At the beginning of the season of 1907 it was decided that the referee should not act in any case unless requested to do so by both the salesman and the buyer. Under the new rule the salesman had to be communicated with after the cheese or butter arrived in Montreal, and the result was that it was frequently a week or more from the time the cheese left the factory until they could be examined. As was pointed out to the salesmen before the rule was adopted, this delay was very much against the factory, because if there was anything wrong with the quality, it was getting worse every day. The delay in securing the consent of the salesman to the examination by the referee made the matter so unsatisfactory that during the past two or three years very little use has been made of the referee's services.

The presence of an expert butter and cheese maker in Montreal, to advise butter and cheese makers concerning defects found in their shipments from time to time, should be of great service to the dairy industry, but, unfortunately, the butter and cheese makers have not availed themselves of the services of this officer to the extent that it was hoped they would.

During the season of 1909 the office was filled by Mr. J. F. Tilley, the well-known butter and cheese instructor, of Woodstock, N.B. Mr. Tilley has submitted the following report of his season's work.



1 GEORGE V., A. 1911

REPORT BY MR. J. F. TILLEY.

MONTREAL, December 1, 1909.

The Dairy and Cold Storage Commissioner.

SIR,—I herewith present my report as Official Referee of Butter and Cheese at Montreal for the season of 1909. The position of referee is necessarily attended with more or less unpleasantness, due to the fact that he has to act between buyer and seller, but I am pleased to state that, with one or two exceptions, my decisions were accepted without question. It was my aim, when issuing certificates for second or third quality of either cheese or butter, to write the maker or salesman regarding the faults found, giving him my ideas as to how they could be corrected. I also wrote the chief instructor each week, giving him the name of factory, location and brands of cheese or butter examined, with the faults, so that he could send an instructor to assist the makers that were in trouble.

LOTS OF CHEESE EXAMINED, BY MONTHS.

Months.	1st Grade.		2nd Grade.		3rd Grade.		Culls.		Total all Grades.	
	Lots.	Boxes.	Lots.	Boxes.	Lots.	Boxes.	Lots.	Boxes.	Lots.	Boxes.
May.....	1	21	1	50	3	56	.....	.....	5	127
June.....	.....	.....	20	749	3	81	.....	.....	23	830
July.....	1	4	63	3,269	12	557	.....	.....	76	3,830
August.....	2	80	23	1,053	1	20	.....	.....	26	1,156
September.....	3	30	41	2,017	1	15	.....	.....	45	2,062
October.....	.....	.....	21	921	.....	.....	.....	.....	21	921
November.....	.....	.....	1	31	.....	.....	.....	.....	1	31
December.....	.....	.....	2	83	.....	.....	.....	.....	2	83
	7	135	172	8,173	20	729	.....	.....	199	9,040

DEFECTS IN CHEESE.

The principal defects found in cheese were: ‘not clean,’ ‘fruity,’ ‘off flavour,’ ‘weak,’ ‘loose,’ ‘open,’ ‘gassy,’ ‘acid’ or ‘sour,’ ‘mealy,’ ‘cracked or stained surfaces.’

Out of 199 lots of cheese examined, which represented 9,040 boxes, 7 lots, or 135 boxes, were graded 1st; 172 lots, or 8,173 boxes, were graded 2nd, and 20 lots, or 729 boxes, were graded 3rd. The second and third grade cheese were all faulty in flavour, due to either bad flavoured milk or poor starter having been used.

Another very objectionable fault and one which seemed hard to correct, was that many samples examined were weak in body and loose or open in texture. I found week after week that lots of cheese would come in from the same factories having this fault, which was almost invariably caused by an insufficient development of acid and salting too early.

Later in the season, another defect seemed to predominate, namely a soft and pasty cheese. This fault seemed to be due to insufficient cooking, or lack of stirring. These cheese almost invariably carried a bad flavour and could only be classed as very objectionable cheese.

The finish of the lots examined was generally good, excepting from some parts of Quebec, where they were irregular in size and carried too much bandage on the ends, which had a tendency to cause the purchaser to find fault.



## SESSIONAL PAPER No. 15a

## DATING CHEESE.

As my predecessors have done, I wish to point out the fact that if the cheese were dated on the ends, instead of on the side, much more justice could be done to factory-men. If this were done and the vat number placed under the date, a much more accurate examination could be made. As the practice now is, no referee can give a correct report of the quality of cheese or butter by simply examining ten or twelve per cent of the packages. It is up to the makers to change this system, as no other individual has any control over the situation.

## BUTTER.

Thirty-seven lots of butter, representing 1,174 packages, were examined during the season. Of these, 19 packages were graded 1st, 1,097 packages graded 2nd, and 36 packages graded 3rd. The chief faults found were: 'not clean,' 'old, sour cream flavour,' 'salvy, overworked,' 'mottled colour.' The finish and package were generally good.

In closing I wish to point out the fact that, owing to the necessity of the referee having to receive an order from the factory salesman before he is authorized to examine cheese or butter, much valuable time, as well as money, is sometimes lost through the delay, especially during a season when high prices prevail, as was the case this year. Buyers, as a rule, are not anxious to make cuts; neither is the referee anxious to give a report other than for first grade; consequently, if factory salesmen would at the opening of the season place a standing order with the referee to examine their cheese or butter when asked to do so by the buyer, they would place themselves in a much better position to get quick returns. I have seen thousands of boxes of cheese which were faulty passed by buyers, which had a tendency to deceive the maker, for when he received no cut from the purchase price, he naturally supposed his stock was all right. This method of doing business also has a bad effect on the export trade. It therefore seems necessary that the factoryman, buyer and referee should work together in order that good results may follow.

J. F. TILLEY,  
*Official Referee.*

## MILK TEST GLASSWARE SHOULD BE VERIFIED.

In the distribution of the proceeds from the sale of cheese and butter, at many of the cheese factories and creameries, the value of the milk or cream delivered by the different patrons is based on fat content, as shown by the Babcock and other milk tests. It is important, therefore, that the glassware used in connection with these tests should be accurately graduated and marked. During recent years there has been some complaint respecting the accuracy of this glassware, and it is important that provision should be made for its official verification on the same principle as that which provides for the inspection of weights and measures. Confidence in the accuracy of the test is necessary in order to encourage the more general adoption of the plan of paying for milk according to quality. I trust that the Bill which you have introduced into Parliament with a view of regulating this matter will be passed during the present session.







SESSIONAL PAPER No. 15a

TOTAL EXPORTS OF CHEESE AND BUTTER IN FISCAL YEARS 1880 TO 1910  
INCLUSIVE.

BUTTER.			CHEESE.		
Year.	Quantity.	Value.	Year.	Quantity.	Value.
<i>Years ending June 30.</i>	Lbs.	\$	<i>Years ending June 30.</i>	Lbs.	\$
1880.....	18,535,362	3,058,069	1880.....	40,368,678	3,893,366
1890.....	1,451,585	340,131	1890.....	94,260,187	9,372,212
1891.....	3,768,101	602,175	1891.....	106,202,140	9,508,800
1892.....	5,736,696	1,056,058	1892.....	118,270,052	11,652,412
1893.....	7,036,013	1,296,814	1893.....	133,946,365	13,407,470
1894.....	5,531,621	1,095,588	1894.....	154,977,480	15,488,191
1895.....	3,650,258	697,476	1895.....	146,004,650	14,253,002
1896.....	5,839,241	1,052,089	1896.....	164,689,123	13,956,571
1897.....	11,453,351	2,089,173	1897.....	164,220,699	14,676,239
1898.....	11,253,787	2,046,686	1898.....	196,703,323	17,572,763
1899.....	20,139,195	3,700,873	1899.....	189,827,839	16,776,765
1900.....	25,259,737	5,122,156	1900.....	185,984,430	19,856,324
1901.....	16,335,528	3,295,663	1901.....	195,926,397	20,696,951
1902.....	27,855,978	5,660,541	1902.....	200,946,401	19,686,281
1903.....	34,128,944	6,954,618	1903.....	229,099,925	24,712,943
1904.....	24,568,001	4,724,155	1904.....	233,980,716	24,184,566
1905.....	31,764,303	5,930,379	1905.....	215,733,259	20,300,500
1906.....	34,031,525	7,075,539	1906.....	215,834,543	24,433,169
<i>Years ending Mar. 31.</i>			<i>Years ending Mar. 31.</i>		
1907 (9 months)....	18,078,508	4,011,609	1907 (9 months).....	178,141,567	22,006,584
1908.....	4,786,954	1,068,703	1908.....	189,710,463	22,887,237
1909.....	6,326,355	1,521,436	1909.....	164,907,139	20,384,666
1910.....	4,615,380	1,010,274	1910.....	180,859,886	21,607,692



1 GEORGE V., A. 1911

DETAILED STATEMENT OF EXPORTS OF CHEESE IN FISCAL YEARS 1902 TO 1910 INCLUSIVE.  
(Years ending June 30, 1902 to 1906, and years ending March 31, 1907 to 1910.)

To	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Great Britain.....	19,620,239	24,620,004	24,099,004	20,174,211	24,300,908	21,909,879	22,763,736	20,268,166	21,481,566
Australia.....	6,862	6,913	6,247	5,411	5,350	245	525	223	171
British Africa.....	868	2,514	7,559	10,612	16,623	18,261	16,362	12,466	16,423
B. W. Indies.....	18,542	44,674	34,253	36,176	25,509	13,666	27,533	26,940	24,035
B. E. Indies.....	60	40	315	62	20				
British Guiana.....	1,833	2,165	1,193	2,571	3,860	3,143	6,228	4,452	5,232
Other British Possessions.....	746	553	216				9	1	1,011
Hong Kong.....		161	1,253	1,079	1,029		851	2,452	733
New Zealand.....	216	983	1,039	1,642	1,795	1,090	1,362	549	1,267
Newfoundland.....	20,100	21,334	21,754	35,171	30,992	37,748	33,792	41,163	36,912
Belgium.....			10	22	287		2,080		
Argentina.....		14							
Cuba.....	350	331	211	102	811		57		17
China.....	1,409	1,734	1,899	2,013	2,195	2,206	1,572	568	756
Danish West Indies.....	332	2,037	1,936	2,046	2,056	1,568	1,985	1,937	2,453
France.....			44	700	7,203		10	81	
Japan.....	821	1,076	1,609	759	775	1,071	1,444	2,200	1,208
Philippine Islands.....		289	100						
St. Pierre.....	158	120	356	341	875	318	190	364	311
United States.....	12,038	7,779	5,386	14,182	16,082	6,900	17,732	19,428	23,995
Dutch West Indies.....	538								
Norway and Sweden.....					994				
Germany.....	1,179	170		104					
Bermuda.....				364		54	3		102
Dutch Guiana.....		15	23	12,505	14,033	9,080	9,245	3,174	11,385
Egypt.....		30		18	13	9			
Mexico.....			159	329	1,594	630	168	499	108
French West Indies.....		7							
Central America.....				80			347	3	
Holland.....						110			
U. S. of Colombia.....					97				
Other countries.....					68		6		5
Totals.....	19,686,291	24,712,943	24,184,566	20,300,500	24,433,169	22,006,584	22,887,237	20,384,666	21,607,692



## SESSIONAL PAPER No. 15a

## DETAILED STATEMENT OF EXPORTS OF BUTTER IN FISCAL YEARS 1902 TO 1910, INCLUSIVE.

(Years ending June 30, 1902 to 1906; years ending March 31, 1907 to 1910.)

To	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Great Britain.....	5,459,300	6,551,014	4,400,774	5,568,999	6,802,003	3,805,925	823,761	1,273,484	587,493
British West Indies.....	71,816	112,968	127,790	80,323	87,085	59,313	85,371	95,370	76,026
British Guiana.....	6,796	7,565	6,412	8,929	11,654	8,113	12,861	7,711	9,497
Other British Possessions.....	284	72					5		544
Hong Kong.....									
Newfoundland.....	47,066	69,017	82,422	82,387	48,283	56,516	34,931	54,552	50,074
China.....	78	141	1,763	562	761	5,041	1,319		
Cuba.....	243	202	796	658	285	1,034	720	96	22
Danish West Indies.....									
French West Indies.....	1,581	6,077	5,868	4,473	4,560	3,664	4,939	4,418	4,697
Germany.....	101	1,020							
Hawaii.....		13	25,644						9,777
Haiti.....		115							
Japan.....		38							
St. Pierre.....	1,013	1,816	6,027	6,496	9,373	9,062	4,258	3,019	1,002
United States.....	27,102	28,655	26,598	21,827	17,668	17,615	18,749	14,740	14,036
British Africa.....	41,149	10,225	6,497	70,580	33,965	3,539	38,899	18,246	199,854
Mexico.....	12	133,958	16,417	4,914	2,056	265		22,458	1,873
Brazil.....		4,685			1,268	484	265	660	936
Dutch West Indies.....	1,608	9,084							
U. S. Colombia.....	2,040								
Australia.....	92	1,175	2,272	200	1,747	2,145		1,105	832
Bermuda.....	260	6,187							
France.....									
San Domingo.....			14	50,482	47,015	33,900	33,177	14,273	43,638
Holland.....		1,351		14,410	4,155				
Venezuela.....			8,175	13,680					
Belgium.....	6,240								
Central America.....			10	116					
Corea.....			686	1,062	3,431	4,932	9,448	7,074	2,590
Dutch Guiana.....				15					15
Turkey.....				186	30	40			48
Porto Rico.....				50		21			
Panama.....					170				
Austria-Hungary.....								4,229	7,320
Totals.....	5,660,541	6,954,618	4,724,155	5,930,379	7,075,539	4,011,609	1,068,703	1,521,436	1,010,274



1 GEORGE V., A. 1911

## REPORT OF THE ASSISTANT DAIRY COMMISSIONER.

To the Dairy and Cold Storage Commissioner.

SIR,—To-day, March 31, marks the close of the twentieth year that has elapsed since I was appointed Assistant Dairy Commissioner for the Dominion. I have devoted this part of my life, as understood at the time of my appointment, to the progress of dairying in the French sections of the Dominion, especially the province of Quebec. As I have presented a report of my work every year, the present one will be the twentieth I have made as Assistant Dairy Commissioner. It covers the period of twelve months from April 1, 1909, to March 31, 1910.

## SUMMARY.

During the past year I have made 109 visits to 91 localities in 35 counties, in the provinces of Manitoba, Ontario and Quebec, and have delivered 113 lectures before 17,585 persons, 164 of whom were butter or cheese makers. The average attendance at these lectures was 155. Of the 91 places I visited 23 for the first time. I have travelled 10,714 miles in performing my work.

## PROVINCIAL MEETINGS.

The first provincial meeting I attended during the past twelve months was the annual convention of the Agricultural Missionaries of the Province of Quebec, held at Oka, July 13 and 14, 1909. At that convention I lectured on 'Farm Manure.' On the 14th of the same month I was present at the organization meeting of the Quebec Farmers' Experimental Union, at the Oka Agricultural Institute. On August 24 and 25 the summer convention of the Pomological Society of the Province of Quebec was held at the Institute, at which I delivered a lecture in French and English on 'The Renovation of Old Orchards.' On August 25, at the same place, I attended the summer meeting of the Quebec Society for the Protection of Plants, and delivered a lecture on 'Climate and Insects' in English and French. On the 26th of August, at the same place, I was present at the first regular meeting of the Quebec Farmers' Experimental Union. I went to Macdonald College, Jacques Cartier County, to attend the winter meeting of the Pomological Society of the Province of Quebec, on December 9 and 10, 1909, and delivered a lecture there in English and French on 'The Forest and the Farmer.' On January 11 and 12, 1910, at the annual convention of the Quebec Dairymen's Association, I delivered an address on 'Axioms, Sayings and Legends in Dairying,' of which the following is a summary:—

Definition.—The legend of the general purpose cow.—The legend of the cow with an immense yield of milk.—The bull and the herd.—The waning moon and its effect on calves.—The calf's owner should not know the sound of its voice.—A calf should never lose its calf's fat.—Feed and milk fat.—Cold vs. milk yield.—Does thunder cause acidity in milk?—Cleanliness is a virtue.

On February 8, 1910, upon a special invitation from the Society of Social and Political Economy of the Province of Quebec, I delivered, at Laval University, Quebec, a lecture on 'The Forest and the Farmer.' The winter convention of the Quebec Society for the Protection of Plants took place at Macdonald College, on March 16, 1910. Having been invited to attend it, I delivered a lecture there on 'The Carrot Fly,' in English and French. This was the last of the nine provincial meetings attended during the past twelve months, at which I delivered 19 lectures.

## COUNTY AND DISTRICT MEETINGS.

This year I attended twenty county and district meetings. The first was held by the Horticultural Society of Megantic County, at Inverness. I had been appointed by the Pomological Society of the Province of Quebec as a delegate to that



## SESSIONAL PAPER No. 15a

meeting, which took place on September 9, 1909, in connection with the horticultural exhibition held the same day. I delivered a lecture there on 'Horticulture and Fruit Growing.' I attended a similar meeting at St. Jean Port-Joli, on September 28, 1910, the day of the horticultural exhibition under the auspices of the Horticultural Society of L'Islet County. The third district meeting to which I was invited was one held at Ste. Anne de la Pocatiere, Kamouraska County, on December 20 and 21, 1909, when the classical college at that place celebrated the 50th anniversary of the foundation by the late Abbe F. Pilote, then superior of the college, of the first agricultural school in the Dominion of Canada, which was the second opened in America. The fourth county meeting I attended was the annual convention of the Horticultural Society of Kamouraska County, which was held on February 22, 1910. The other county and district meetings I attended were those of a series of

## FARMERS' INSTITUTE MEETINGS

arranged for by the Live Stock Commissioner, by direction of the Honourable the Minister of Agriculture, from March 1 to March 11, 1910, in the following localities in the province of Quebec: L'Ancienne Lorette, Quebec County; St. Clair, Dorchester County; St. George, Beauce County; Ste. Famille, Island of Orleans, Montmorency County; St. Raphael, Bellêchasse County; St. Jean Port Joli, L'Islet County, St. Pascal, Kamouraska County; St. Arsene, Temiscouta County; and Bic, Rimouski County. In this series I delivered sixteen addresses, dealing with 'Dairy Hygiene,' and 'Weeds.' I had as fellow lecturers during this trip Messrs. J. H. Grisdale, Agriculturist, of the Central Experimental Farm, Ottawa, and Luc Dupuis, Apiculturist, of Village des Aulnaies, L'Islet County.

## LECTURES TO FARMERS' CLUBS.

As usual, the greatest part of my lecture work was done for farmers' clubs, which are so numerous in the province of Quebec, and give so much help to lecturers in disseminating agricultural knowledge amongst the farming community.

I had a special call this year to lecture on the development of wheat culture in the adjoining counties of Nicolet and Yamaska. As dairying in all its branches has been carried on in that section of Quebec for the past forty years, the soil is in very good condition and many farmers can now grow crops of wheat. As they have very good roller mills in operation, which makes first-class flour, they will find that wheat growing will enable them to bake their own bread, which will mean a great saving for them.

The addresses given before most of the farmers' clubs in other counties were especially on 'Weeds and their Eradication.' I have devoted special attention during the past year to a campaign against weeds, because they are now becoming the curse of agriculture in the Dominion.

Other subjects treated before the clubs were:—'The Selection and Care of Dairy Cows'; 'The Care of Milk'; 'Hand Separators on the Farm'; 'Horticulture and Fruit Growing'; 'The Forest and the Farmer'; 'Rural Economy'; 'A Study of the Causes of the Decrease in Dairy Exports'; 'Dairy Hygiene.'

I have delivered fifty lectures in all before the farmers' clubs in the province of Quebec.

## ADDRESSES AT PARISH MEETINGS.

At parish meetings, during the period covered by this report, I delivered twenty-four lectures, five of which were given in the province of Quebec (where there are now very few parishes without a farmer's club), five in Prescott County, Ontario, and fourteen in the province of Manitoba. At the meetings in Quebec I spoke on the same subjects as were dealt with before the farmer's clubs. In Prescott County, Ontario, I



1 GEORGE V.,<sup>9</sup>A. 1911

spoke chiefly on 'The Causes of the Decrease in Dairy Exports' and on 'Weeds and their Eradication.'

As to Manitoba, I have prepared a report of my trip and my work in that province.

#### A TRIP TO MANITOBA.

In accordance with instructions received from the department, I started on June 9th for the province of Manitoba, where I was requested to deliver a series of lectures on agriculture and dairying in the French settlements of the Red River Valley, around Winnipeg. I began my work in that province on Saturday, June 12, and finished it on June 30. In that period I visited the following localities:—Isle des Chenes, La Broquerie, Letellier, Lorette, St. Charles, St. Eustache, St. François-Xavier, St. Jean Baptiste, St. Malo, St. Norbert, St. Pierre Joly, Ste. Agathe, Ste. Anne, Ste. Elizabeth, and Winnipeg.

I travelled through the whole country covered by these fifteen localities, in order to get a good knowledge of the system of farming followed, to obtain information about the quality of the land and the cattle kept on the farms, and especially to examine the weeds, which are much too numerous. After travelling through these localities I gave in each one, except Winnipeg, an address on the subject which I considered of the greatest interest to my hearers.

The following is a short summary of my lectures.

#### A RETROSPECTIVE GLANCE.

In 1892, I delivered a series of lectures in Manitoba at all the places but two that I visited this year. I then advocated mixed farming and dairying as two things to which farmers would have to give their most serious attention, for two reasons. The first was that a farmer cannot go on cultivating wheat for many years without improving the soil, rich as it may be. The second was that continuous wheat growing for years on the same soil, without following a system of rotation, favours necessarily the growth of weeds, and once the great fields of Manitoba were infested with weeds, the quality of wheat would fall below the standard, its cultivation would become very difficult, the yield would be greatly diminished. I concluded by saying that as soon as the soil showed signs of exhaustion and became infested with weeds, the Manitoba farmer would find it a very hard and costly job to restore fertility to the land and to fight the weeds.

Unfortunately, I have found during my recent trip that all the evils of a too extensive system of wheat growing, which I had predicted as impending in 1892, are now becoming a reality. At a meeting in one of the localities I visited in that year, I asked the farmers to tell me what was then the average yield of wheat on an acre of their land, and they answered that it was twenty-five bushels. When I put the same question to the same farmers in the same locality this year, they answered that the present yield was only fourteen bushels.

In the same locality in 1892 I told the farmers that I had found that they were beginning to have weeds in their fields of wheat, especially Canada thistle and French weed. When I asked them this year about the condition of the fields as to weeds, they told me that their lands were now completely invaded by six of the worst weeds to be found anywhere.

#### ROTATION OF CROPS.

Having spoken of mixed farming and cattle raising as a necessity of the Manitoba farmer if he wishes to retain the fertility of his land and to get rid of weeds, I must now say a word about the rotation to follow in order to establish this system of farming on the land.

A rotation for the eradication of weeds always means a short rotation of about four years. Supposing that we have to apply a regular rotation to a piece of land infested with sow thistle, we would begin to work it as early as possible in the spring,



## SESSIONAL PAPER No. 15a

ploughing, harrowing, cultivating, rolling, ploughing again, and then seeding heavily with vetches, pease and oats at the end of June or the beginning of July. I would use that as green fodder early enough in the fall to be able to plough and harrow before the frost comes. That would be for the first year of the rotation. The following spring I would sow wheat with clover and timothy. The third year I would grow a crop of hay and afterwards have the meadow grazed by cattle and sheep till the frost came. The fourth year I would again keep the animals on the pasture and would, early in the fall, plough, harrow, cultivate and give a second ploughing before the frost came. I do not think any weeds would survive such a treatment.

With that system there is no bare fallowing; that is to say, there is no year without a crop; we would avoid frittering away and exhausting the soil by too frequent summer fallowing; we raise less wheat, but we have an abundance of feed for dairy cattle and sheep, and we have veal, mutton, butter or cheese, wool and grain to sell, and some wheat, with the satisfaction of living on clean, fertile land that will retain its cleanliness and fertility for years. Such a system is, we think, worth trying.

## A VISIT TO WINNIPEG.

At the beginning of this report I stated that I delivered a lecture in all the localities visited except Winnipeg. My visit to Winnipeg was the result of an invitation I received from Mr. Jacques Parent, of Letellier, to visit the Manitoba College of Agriculture. Mr. Parent is a director of that institution, which is situated near Winnipeg, and was to accompany me, but he was suffering from a serious illness at the time of my visit and Mr. J. P. O. Allaire, of St. Boniface, came with me. We were kindly received by Mr. W. J. Black, B.S.A., the principal of the college, who took us through all the various departments. We saw none of the students, as it was vacation time, but we spent a pleasant afternoon with Mr. Black, who very kindly answered all our questions about the courses at the college. While there I noticed particularly an experiment that is being made with some specimens of the notorious brown rat that has lately invaded the southern part of the province of Manitoba, in order to ascertain the effect on these animals of inoculation with a serum which, it is hoped, will destroy that pest.

We found that the Manitoba Agricultural College is an institution of which Manitobans have reason to be proud. It was opened in the year 1906, and the authorities are already speaking of increasing the capacity of the institution, so numerous are the applications for admittance to the courses. I beg Principal Black to accept my best thanks for his cordial reception.

## ACKNOWLEDGMENTS.

In closing this report of my trip to Manitoba, I wish to express my gratitude to Messrs. Jacques Parent, of Letellier; J. P. O. Allaire, of St. Boniface, and George Caron, of St. Charles, for the trouble they took to make my trip as useful and pleasant as possible, and to thank the reverend parish priests of the various localities I visited, for their hearty reception and for having, most of them, placed the church halls at my disposal for meetings.

## VISITS TO COLLEGES AND SCHOOLS.

Eight of the addresses delivered this year were given to students at Oka, Plaisance and Macdonald College. The subjects discussed were some of those already mentioned in this report.

## FACTORY INSPECTION.

I generally devote a good part of the months of May and June to the inspection of cheese and butter factories and to lecturing on the care of milk to the patrons of the factories visited; but this year I had to cancel my engagements for this kind of work in three syndicates, on account of my trip to Manitoba. For that reason I inspected only eight factories.



1 GEORGE V., A. 1911

## OFFICE WORK.

My office work this year has been more arduous than it generally is, owing to the fact that I had to travel much more than usual, and had to write many lectures, papers, memoranda and articles, in response to numerous requests for such work, as mentioned in the following list:—

- Arbor Day (article in French).
- The 3,000-pounds Cow (article in English and French).
- Three Foes of Quebec Dairying (article in English and French)
- A Talk on Sheep (article in French).
- Nineteenth Annual Report of the Assistant Dairy Commissioner (a report in English and French).
- Heating of Whey (an article in French).
- Some Advice for the Haying Season (article in French).
- Two Weeds (article in French).
- Cheese as Food (article in French).
- Dairying: a Short Chronicle (article in French).
- Hauling Milk to Factories (article in French).
- Renovation of Old Orchards (a lecture in French and English).
- Climate and Insects (a lecture in French and English).
- Report on Dairying in New Zealand (article in French).
- Increase in Dairy Cattle Raising (memorandum in English).
- A Trip to Manitoba (report in English).
- Historical Notes on Quebec Dairying (memorandum in English).
- Hygiene in Dairying (a lecture and paper in French).
- Influence of Bad Weather in 1909 (article in French).
- Winter Dairying (article in French).
- Report of the Summer Meeting of the Quebec Society for the Protection of Plants (a paper in English and French).
- Domestic Pasteurization of Milk (article in French).
- Trouble in Cream Churning (correspondence in French).
- Weeds (a lecture in English and French).
- Hoard's Dairyman and Hand Separators (an article in French).
- The Carrot Fly (an address in French and English).
- Some Advice for Arbor Day (article in French).
- A Short History of Dairying (article in French).
- Better Methods for Quebec Dairy Farmers (paper in English).
- Twentieth Annual Report of the Assistant Dairy Commissioner for the Dominion (report in English and French).
- The Forest and the Farmer (address in English and French).
- Farm Manure (lecture in French).
- Wheat Culture (lecture in French).
- Axioms, Sayings and Legends in Dairying (a lecture in English and French).
- Horticulture and Fruit Growing (lecture in French).
- Origin of French Canadian Dairy Cattle (memorandum in English and French).

This shows a total of 44 papers and articles written in French or English, 31 of which were on dairy topics.

## CONCLUSION.

Before closing this twentieth report of my work as Assistant Dairy Commissioner, I think it may prove of some interest to those whose duty it is to promote the welfare and progress of the Dominion dairy industry to be able to find at a single glance what my share in that work has been. In the short and very condensed summary given below they will see that from April 1, 1890, to March 31, 1910, I have travelled through five of the Dominion provinces, Prince Edward Island, New Brunswick,



## SESSIONAL PAPER No. 15a

Quebec, Ontario and Manitoba, and have done the amount of work indicated in the following figures:

Provinces visited.. . . . .	5
Counties visited .. . . . .	89
Lectures delivered.. . . . .	3,144
English lectures.. . . . .	436
Farmers met.. . . . .	300,668
Makers met.. . . . .	9,440
Miles travelled.. . . . .	214,918

With these remarks I conclude my twentieth report, which I hope will meet with your approval as showing part of what our branch of the Dominion Department of Agriculture has done for the progress and welfare of the French dairymen and farmers of the Dominion in the period between April 1, 1890, and March 31, 1910.

I have the honour to be, sir,

Your obedient servant,

J. A. CHAPAIS.

*Assistant Dairy Commissioner.*

Saint Denis (en bas), County of Kamouraska,  
March 31, 1910.

## THE COW TESTING MOVEMENT.

The campaign to promote the testing of individual cows has now been in progress for five years. A great deal of educational work has been necessary to create an interest in the question and to bring cow owners to the point of realizing the importance of studying the productive capacity of the individual animals in their herds. A rather disappointing feature of the work, so far, is the number of farmers who have begun testing only to discontinue after a few months, or at the end of the first year. It is satisfactory to find, however, that many of these backsliders are taking it up again with a better understanding of the question, and, in consequence, with a better prospect of securing tangible results.

Publicity has been recognized as one of the most useful agencies in attracting attention to and creating an interest in this work and with that end in view, numerous press paragraphs dealing with the subject in its various aspects have been scattered broadcast among the agricultural and weekly papers throughout the country.

The standing offer to supply the blank record forms to all who apply for them has been met with hundreds of applications from farmers who propose to conduct tests on their own account, and independent of the cow testing associations.

By comparing herd records from year to year, numerous cases have been found which show substantial increases in the average yields. The owners of these herds have been invited to give their experiences and to state what means have been employed to secure such satisfactory results. Some typical replies will be found in the following pages.

One point in this connection cannot be too strongly emphasized, and it is this, that an increased yield generally means so much additional clear profit. For the purpose of illustration, let us suppose that the average yield of a certain herd is 3,500 pounds of milk a year, having a value of \$35. If it costs \$30 in feed to produce this quantity of milk, the net profit is \$5 per cow. If the average yield should be increased by 500 pounds, at a value of \$5, the profit would be practically doubled; or, in other words, the profit from a herd of 10 cows giving 4,000 pounds a year would be equal to that from a herd of 20 cows yielding only an average of 3,500 pounds.

The importance of keeping an account of the feed is not being lost sight of, and a



1 GEORGE V., A. 1911

fair number of those who are testing their cows have been supplied, on request, with blank forms for feed record purposes.

The plan of our operations at present may be stated in a few words. The owners of herds are encouraged to form associations or groups, so that there may be a sort of co-operation in having the tests made. Speakers are sent to meetings called for this purpose. Each member must supply his own outfit, consisting of a scale, and one bottle for each cow, to hold the composite sample which is tested for percentage of butter fat. Once a month these bottles are delivered to the person who makes the test, and who is paid for doing so by the Department of Agriculture at the rate of 5 cents per test. The department also supplies the acid used in making the tests and the chemicals for preserving the samples, as well as the blank record forms. When each monthly test is completed the results are forwarded to this office, where the calculations are made and entered in the permanent record books. A copy of his test is then returned to each member, with the totals to date, of milk and fat, for each cow.

Supervisors are employed, one each in Ontario and Quebec and one for the maritime provinces. These experts visit the testing centres to see that the work is done properly and with reasonable despatch, and to confer with individual farmers as far as possible.

Every effort is made to secure the co-operation of factory owners, cheesemakers and buttermakers, as the factories are the natural centres from which this movement should derive strength and support. We find it most successful where some such person in the locality takes an active interest in it.

Mr. Whitley has prepared the following report from the records of the past year.

## THE RECORDS OF THE COW TESTING ASSOCIATIONS FOR 1909.

### GENERAL.

The work of the cow testing associations has been carried on during the past year with decidedly increased interest. In addition to new associations, and new members in old associations, several old members who had discontinued weighing and sampling have again taken up the plan. A very large number of individual farmers have been supplied with milk record blanks and are taking weights regularly, but as they are not forwarding copies to the department, their records are not included. One dairy supply house alone reports over one thousand inquiries in two months for scales and Babcock testers.

In order to provide for a step in advance in connection with cow testing, a simple feed record form has been prepared and widely distributed to aid in compiling the cost of feeding the cows whose milk is being recorded. As cows vary in the quantity of milk produced for the feed consumed, it is important to know which cows give the best results in this respect.

The special feature of this year's report is the publishing of some details in connection with several herds where there has been a very satisfactory increase in the yields of milk and butter fat as the direct result of the use of this simple but effective plan of weighing and sampling the milk of each cow in the herd.

In addition to attending annual meetings of the members of cow testing associations, many other meetings have been held in response to requests for information concerning the keeping of dairy records. At all of such gatherings inquiries were eager and numerous regarding the feeding of dairy cows, particularly with reference to ensilage, roots and alfalfa. From discussions at such meetings, it is apparent that closer attention is being given to the care and handling of dairy stock, as well as to cleanliness, light and ventilation in cow stables. Correspondence on the subject is steadily increasing.



## SESSIONAL PAPER No. 15a

There appears to be a growing interest in the question of testing milk in cheese factory sections, indicating a spread of the movement in favour of the equitable system of payment for milk by the butter fat test instead of by weight.

The best averages of herd production occur where there is the tendency towards keeping grades of one breed only in lieu of an assortment of four or five breeds. This high level production seems usually to go hand in hand with unswerving allegiance to one good fixed type rather than continually chopping and changing in search of some new fancy.

The urgent need of many sections where the tendency has been cheapness rather than merit is an awakening to the necessity of using only a good, pure bred sire if there is to be real, definite herd improvement. Two or three neighbours could easily co-operate in purchasing a carefully selected specimen, and may rest assured of quick cash returns in the extra flow of milk.

## INCREASED INTEREST IN PRINCE EDWARD ISLAND.

Another feature of the year's work is the remarkable increase of activity in the province of Prince Edward Island. The supervisor of cow testing for the maritime provinces, Mr. Harvey Mitchell, has been obliged to spend much of his time on the island to meet the demand for information and for assistance in the organization of new associations. It is gratifying to be able to add that this is only one of the signs of new life in the dairy industry of Prince Edward Island.

Two other supervisors have been continuously at work in Ontario and Quebec.

## RECORDS SHOULD BE KEPT FOR THE COMPLETE YEAR.

Only total yields of milk and butter fat for the full period of lactation or for twelve months' production, are given in the report this year, instead of including yields of shorter periods as in previous years. Records of many hundreds of cows were sent in for only a few months. Several of such records show very good yields; for instance, there are cows of excellent promise giving over 1,190 pounds of milk per month for five and six months in succession; in six months many grade cows are credited with over 7,000 pounds of milk and 250 pounds of butter fat.

In one herd are three good yields in June from 3 grade cows: 1,750 pounds of milk, testing 3.2; 1,830 pounds testing 3.3, and 1,790 pounds of milk testing 3.1. It is much to be deplored that a great many of the most promising records cannot be included simply because they are lacking for 3 or 4 months; several of such incomplete records show 6,000 and 7,000 pounds of milk in 8 months and the cow still giving 500 and 600 pounds per month, indicating large total yields.

It is desired again to call particular attention to the need of keeping records *for the whole period of lactation*, and not simply for a few months. If any close estimate of profit is to be arrived at, it is useless to make only a guess at the production of milk and fat for four or five months, while but a very little extra time, seeing that figures are already available for seven or eight months, will give definitely the whole year's result, making the completed totals of infinitely more value to the owner himself, besides rendering valuable service to dairymen all over Canada through making it possible to compare results of hundreds of more herds.

Suppose, for instance, that the factory does not open till April, but many cows have freshened in February and March; now, instead of waiting till the real rush of farm work is on and delaying the taking of weights and samples in many cases as late as May, would it not be very simple to commence weighing just as soon as the first cow freshens? Even if it is not possible to get samples tested, there would be distinct advantage in knowing the weight of milk given by each cow for that opening period. This would lead gradually, as each cow freshens, into the weighing and sampling for all the herd, thus avoiding any feeling of a sudden and extra burden of work.



1 GEORGE V., A. 1911

Similarly when the factory closes, plenty of milk may still be obtainable from three or four cows in the herd, and it often happens that the recording of these weights of milk which were hardly considered worth noticing may bring up the total yield of one or two individuals surprisingly, often forcing one to modify his views as to the best individual. The cow that has the commendable faculty of sticking closely to her business as a milk producer for a lengthy period, though the quantity given daily may not be particularly heavy, may far outshine another animal with a brilliant but brief record. The cow is not to be judged simply by a heavy yield under most favourable conditions in May or June; it is necessary to know the total yield during the twelve months before her value as a profitable animal can be really computed. Let us repeat and emphasize; that hitherto neglected yield of the odd months, either at the beginning or end of the lactation period, should be taken note of, for it may make considerable difference in calculating profit per cow.

#### WHAT COW TESTING MEANS IN CASH.

A survey of the work accomplished during the past year prompts the inquiry, what is the significance of this work as regards income for Canadian dairymen? As shown further on, several men have made substantial increases in three and four years, amounting to from 13 per cent up to 60 per cent in the yield of milk. It should be easy, with concerted action, to achieve a general increase of at least 10 per cent in the yield from all the cows in the Dominion. Even this moderate increment would assume the astounding proportions of an additional ten millions of dollars from the present number of cows. This is well worth seriously considering. That enormous sum is within the grasp of our farmers for but a trifling expenditure of cash, and a few hours work per year—just a little applied intelligence.

Every man of influence who wishes to see our dairy farmers prosper should realize the importance of this simple but far reaching plan and make it a point to recommend the proposition to every farmer in his neighbourhood.

As the members of the Scottish Agricultural Commission on their recent visit to Canada justly remarked, 'The contrasts in the yields of dairy herds are simply bewildering, while the average yields compare most unfavourably with Scottish and Danish records.' When we are rebuked like this it is high time for all factory men, all instructors, all dairy farmers to wake up, to pull together, and to take up cow testing in real earnest. Fortunately we have not far to seek for good patterns, for excellent models; plenty of good individual cows are to be found in practically every province, whose yields are up to 18,000 pounds of milk and even higher, while in many districts throughout Canada are good herds of selected and well fed cows, built up through a study of dairy records, and giving from 7,000 to 10,000 pounds of milk per cow. With satisfactory evidence of such actual attainment there is every possible inducement for our 'average' dairyman to go in and win. It is not so much a question of cash outlay as the application of method and system.

#### MAKERS AND FACTORY OWNERS SHOULD BE INTERESTED.

Cow testing is distinctly and immediately of value to every factory owner, for several good reasons. If farmers supply more milk or cream from a given number of cows or a certain number of acres, it means that by receiving more raw material from the same territory there is a lessening in the cost of hauling and a lowering in proportion of the expense of making, while a longer factory season is possible as the milking period is extended. Further, directly a patron begins testing each cow individually he commences to take far more interest in the herd and is likely to supply not only more, but a far better quality of milk or cream, cared for better.

With the strong probability of having the milk in the vats in far better condition every day, thereby facilitating his work at every step, it is clearly of great importance to every cheese and butter maker to follow this matter up and make it a point to interest every patron in cow testing.



## SESSIONAL PAPER No. 15a

## DAILY WEIGHING AND LARGER YIELDS.

The practice of daily weighing appears to be steadily on the increase amongst the members of associations who commenced the system of weighing on only three days every month. This is very gratifying, indicating, as it does, the laudable growth of interest in the main feature of cow testing—a constant and critical study of each individual cow in the herd. Daily weighing has always been the object in view when the associations were first introduced and has been strongly and persistently recommended when explaining cow testing to inquirers.

Daily weighing has several commendable features. First and foremost, it calls immediate attention to any great fluctuation in yields of milk. The whole herd may have been affected by something preventable, exposure to a cold rain for example, or by something that could not well be prevented; but in many cases a difference that might remain undetected if no weights at all were taken for a week or ten days would be noticed at once in the yields of certain cows. This stimulates instant inquiry as to the disturbing element and prompt application of preventative measures. Again, the hired help may be careless or even abusive, but with a knowledge that the eye of the master is on the detailed account of every milking there is a strong incentive to milk more thoroughly and treat the stock humanely; indeed an extra 500 pounds of milk per cow can often be obtained just by this necessary attention to clean milking.

Further, and very important, an intelligent scrutiny of the records will frequently call attention to a case of impending sickness, and a simple but prompt remedy may institute a double saving, a prevention of further shrinkage in yield, and an avoidance of an urgent call to a distant and possibly expensive veterinary surgeon.

The daily record betokens a close personal interest in each cow and the general conduct of the whole pursuit of dairying that cannot possibly fail to have telling and profitable results. Attention to detail is never so well repaid in the dairy as when watching vigilantly the possibilities and varying temperament of each cow in the herd. A daily record means close oversight of each detail of the business, a sure forerunner of success.

No one expects to find good, heavy producing cows in a herd where no records are kept, but the well kept record is an instant index of ambition on the owner's part for increased yields and an assurance of good prices from any purchaser.

The following tables include the records of those cows tested for a full period of lactation, and of those cows tested a full twelve months and still giving milk.



TABLE I.—Comparisons between Herds in the Province of Ontario for the Full Period of Lactation, 1909.

NAME OF ASSOCIATION.	Herd	No. of Cows	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.				
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.	
			Lbs.	Lbs.	Lbs.	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.		Lbs.		Age.
Avonbank	A	9	55,467	2,060.1	228.9	6,163	3.7	228.9	7,749	3.6	285.9	4,571	3.7	173.4	3	
"	B	7	44,199	1,499.6	214.2	6,314	3.3	214.2	7,666	3.5	269.5	5,472	3.1	169.9	8	
"	C	5	30,980	1,155.4	231.0	6,196	3.7	231.0	8,960	3.2	289.5	4,600	4.0	185.7	2	
"	D	15	89,764	3,193.7	212.9	5,984	3.5	212.9	8,610	3.2	279.9	3,165	3.7	113.7	2	
"	E	4	26,540	964.5	241.1	6,635	3.6	241.1	7,710	3.5	271.8	5,475	3.8	209.3	8	
"	F	14	84,000	2,958.8	211.3	6,000	3.3	211.3	7,930	3.6	285.5	4,690	3.3	165.8	3	
"	G	4	26,322	932.8	233.2	6,580	3.5	233.2	8,380	3.8	323.3	5,430	3.7	203.7	Aged	
"	H	1	6,712	218.8	...	...	...	...	6,712	3.2	218.8	...	...	...	7	
"	I	2	12,480	457.9	228.9	6,240	3.6	228.9	6,690	3.5	240.3	5,790	3.5	217.6	...	
"	J	2	13,040	489.8	219.9	6,520	3.3	219.9	6,690	3.1	209.1	6,350	3.6	230.7	...	
"	K	6	46,557	1,645.7	274.2	7,759	3.5	274.2	8,860	3.3	293.6	6,945	3.8	264.5	3	
"	L	2	11,035	381.0	190.5	5,517	3.4	190.5	5,830	3.4	199.9	5,205	3.4	181.1	12	
"	N	1	3,360	141.8	...	...	...	...	3,360	4.2	141.8	...	...	...	...	
"	O	1	10,975	377.1	188.5	5,487	3.4	188.5	5,530	3.5	197.5	5,445	3.1	179.6	6	
"	P	3	17,685	672.5	224.1	5,895	3.8	224.1	7,025	3.7	263.4	4,660	3.5	163.7	2	
"	Q	4	30,355	1,021.7	255.4	7,488	3.4	255.4	9,170	3.4	315.2	6,265	3.2	221.9	5	
"	R	6	51,499	1,614.6	269.1	8,583	3.1	269.1	10,025	3.1	319.5	7,300	3.1	233.4	2	
"	S	7	41,500	1,465.2	209.2	5,928	3.5	209.2	7,280	3.3	246.0	4,838	3.8	183.7	4	
"	T	4	17,595	631.4	156.3	4,398	3.5	156.3	5,195	3.5	185.5	3,385	3.6	122.6	...	
"	U	4	39,214	1,827.7	165.9	4,901	3.3	165.9	5,541	2.7	153.4	3,960	3.5	138.8	3	
"	V	8	11,280	440.7	220.3	5,640	3.7	220.3	5,925	3.6	215.7	5,355	4.2	225.0	10	
"	W	2	39,785	1,422.0	203.1	5,683	3.5	203.1	7,195	3.7	269.6	4,461	3.6	162.8	7	
Bertie	A	1	4,499	176.6	...	...	...	...	...	...	...	...	...	...	...	
"	B	1	4,440	145.6	...	...	...	...	...	...	...	...	...	...	5	
"	C	1	28,338	1,065.6	152.2	4,048	3.7	152.2	5,445	3.9	203.2	3,068	3.6	114.9	...	
"	D	1	6,250	240.7	...	...	...	...	...	...	...	...	...	...	3	
"	E	4	15,064	525.2	131.3	3,766	3.4	131.3	4,240	3.2	136.8	3,170	3.9	125.8	...	
"	F	1	5,420	203.5	...	...	...	...	...	...	...	...	...	...	...	
"	G	3	15,665	637.2	212.4	5,221	4.0	212.4	5,985	3.8	232.0	5,170	4.3	227.0	...	
"	H	1	5,985	232.0	...	...	...	...	...	...	...	...	...	...	...	
"	I	1	8,231	295.8	147.9	4,115	3.5	147.9	4,932	3.9	182.9	3,299	3.4	112.9	2	
Black Creek	B	1	7,265	217.1	...	...	...	...	...	...	...	...	...	...	...	
"	C	3	22,589	758.5	279.1	7,529	3.7	279.1	8,060	3.5	284.0	6,680	3.5	239.1	4	
"	D	1	7,410	253.9	...	...	...	...	...	...	...	...	...	...	...	
"	E	5	23,594	844.7	168.9	4,718	3.5	168.9	5,455	4.1	224.2	3,404	3.5	120.7	...	
"	F	7	42,170	1,449.5	207.0	6,024	3.4	207.0	8,210	3.0	252.5	4,330	3.0	131.8	...	



## SESSIONAL PAPER No. 15a

Bright.....	19,250	762.4	6,416	3.9	254.1	7,800	3.9	311.7	7	4,860	3.9	190.8	4
".....	89,295	3,062.9	6,868	3.4	285.6	9,120	3.5	324.9	5	4,880	3.5	171.7	2
".....	37,304	1,310.4	7,460	3.3	262.0	11,034	3.6	397.2	4	3,994	3.5	141.1	4
Bobcaygeon.....	21,490	794.6	3,581	3.6	132.4	4,865	3.2	143.7	6	2,295	3.6	89.6	3
".....	20,895	684.5	4,179	3.2	136.9	4,925	3.0	150.6	10	3,305	3.2	105.6	12
Brookdale.....	33,410	1,245.3	5,568	3.7	207.5	6,055	3.6	217.9	11	4,220	3.6	155.9	4
".....	20,276	773.5	4,055	3.5	154.7	6,786	3.8	257.8	5	2,650	4.2	98.5	2
".....	9,460	321.7	4,730	3.3	160.5	4,945	3.4	167.8	5	4,515	3.3	153.9	5
Camlachie.....	26,012	902.4	4,335	3.4	150.4	4,940	3.3	163.5	3	3,795	3.5	133.7	4
".....	50,486	1,825.6	4,589	3.6	165.9	5,318	3.6	189.3	5	4,060	3.3	137.2	4
".....	15,965	537.8	5,321	3.3	179.2	6,065	3.5	213.6	5	4,770	3.1	149.2	15
".....	24,717	888.3	4,943	3.5	177.6	7,551	3.3	255.7	7	2,551	3.3	84.5	2
".....	27,518	935.2	5,503	3.4	187.0	6,715	3.2	219.9	10	4,770	3.3	161.5	9
".....	13,824	475.6	3,455	3.4	118.9	4,590	3.4	160.6	6	1,945	3.4	67.6	10
".....	20,191	695.5	4,038	3.4	139.1	4,925	3.5	176.9	7	2,810	3.5	93.3	3
".....	30,155	1,188.2	6,031	3.9	237.6	7,590	4.1	314.5	7	4,860	3.5	170.6	3
Cassel.....	33,293	1,210.6	4,161	3.6	151.3	5,320	3.5	186.7	7	2,665	3.6	98.2	3
".....	10,915	444.9	5,257	4.2	222.4	6,755	4.3	250.5	7	5,160	3.7	194.4	5
".....	4,445	161.6	4,445	3.6	161.6	4,445	3.6	161.6	4				
".....	69,598	2,508.1	4,094	3.1	147.5	5,290	3.6	194.8	7	2,336	3.5	82.3	8
".....	29,828	1,182.5	4,971	3.9	197.0	7,105	3.5	255.0	5	3,280	3.2	107.1	12
".....	30,110	1,139.4	3,514	4.0	142.4	5,395	3.8	204.8	11	2,095	3.5	74.5	2
Central Smith.....	124,025	4,003.6	8,843	3.2	285.9	11,560	3.4	396.6	10	6,680	3.2	217.7	3
".....	5,622	211.4	2,811	3.7	105.2	3,441	3.7	128.6	7	2,181	3.7	82.8	3
Culloden.....	49,820	1,697.2	4,982	3.4	169.7	6,325	3.4	218.7	6	2,630	3.2	86.1	8
Dalmeny .....	88,642	3,303.2	5,214	3.6	192.3	7,614	3.8	296.2	8	3,455	3.9	136.3	2
".....	107,547	3,943.1	6,326	3.6	231.9	8,950	3.3	296.1	8	4,270	3.4	145.5	2
".....	29,576	1,073.9	4,929	3.6	178.9	6,942	3.1	221.0	7	3,754	3.9	148.4	3
East and West Oxford.....	17,670	604.0	8,835	3.4	302.0	9,220	3.3	312.0	8	8,450	3.4	292.0	9
".....	27,994	1,292.6	5,598	4.6	258.5	6,540	5.2	344.1	8	4,740	5.1	242.2	6
Elma.....	37,451	1,573.9	4,681	3.6	171.7	5,725	3.5	200.1	8	4,135	3.6	152.5	6
".....	47,437	1,689.4	3,953	3.4	135.6	5,685	3.2	196.2	8	1,998	3.2	64.2	3
".....	49,564	1,726.0	5,507	3.4	191.7	6,998	3.4	238.1	11	4,260	3.8	163.8	2
".....	27,791	1,017.1	3,598	3.5	127.2	4,296	3.4	150.0	12	2,926	3.9	114.3	3
".....	69,138	2,502.1	5,761	3.6	208.5	7,500	3.2	245.6	9	3,638	3.8	139.0	2
".....	56,361	2,082.0	5,123	3.6	189.2	6,425	3.8	246.4	3	3,095	3.5	109.4	3
".....	38,484	1,425.7	3,498	3.7	129.6	4,154	3.5	147.4	10	2,628	3.7	98.2	4
".....	41,512	1,627.9	4,612	3.7	169.6	6,080	3.5	213.8	8	3,820	4.2	161.2	4
".....	53,246	1,844.5	5,324	3.4	184.4	7,030	3.1	222.8	8	4,620	3.5	103.8	4
Gamebridge.....	47,720	1,513.4	4,772	3.1	151.3	5,647	2.8	159.9	6	3,950	3.1	123.5	4
".....	32,838	1,103.7	5,473	3.3	183.9	6,420	3.3	212.6	9	4,435	3.3	147.4	4
Hickson.....	78,670	2,907.1	5,619	3.7	207.6	7,259	3.6	264.2	9	3,596	3.6	131.1	4
".....	37,600	1,383.4	4,177	3.6	153.7	5,740	4.3	252.5	8	2,915	3.2	95.0	4
".....	5,640	204.2	5,640	3.4	204.2	5,640	3.4	204.2	10				
".....	32,703	1,104.8	6,540	3.3	220.9	7,345	3.4	252.1	4	5,210	3.4	182.2	4
".....	13,785	495.5	4,595	3.5	165.1	6,185	3.3	207.8	10	3,575	3.7	135.8	2



Comparisons between Herds in the Province of Ontario for the Full Period of Lactation, 1909.—Continued.

Name of Association.	Herd	No. of Cows	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.
Innerkip	A	1	4,960	214.1	Lbs.	4,960	4.3	214.1	4,960	4.3	214.1	4,960	4.3	214.1
"	B	3	9,530	248.3		3,183	3.6	116.1	4,100	3.4	142.9	4,100	3.4	142.9
"	C	1	5,395	219.4		5,395	4.0	219.4	5,395	4.0	219.4	5,395	4.0	219.4
"	D	12	60,528	2,248.7		5,044	3.6	187.3	7,840	3.2	255.2	7,840	3.2	255.2
"	E	8	61,305	2,055.9		7,663	3.3	256.9	9,285	3.0	286.2	9,285	3.3	168.3
"	F	8	59,056	1,966.3		7,362	3.3	245.7	9,025	3.4	311.8	5,425	3.3	179.2
"	G	8	36,659	1,305.9		4,582	3.5	163.2	6,390	2.9	189.9	3,829	3.3	125.0
"	H	4	43,461	1,386.8		10,865	3.1	346.7	12,733	3.2	414.8	9,708	3.2	311.4
Keene	A	7	51,177	1,578.8		7,311	3.0	225.5	8,509	2.9	252.0	6,415	2.7	177.1
"	B	9	54,817	1,807.1		6,090	3.2	200.7	8,055	3.4	279.6	4,755	3.4	165.5
Kerwood	A	7	26,832	967.1		3,873	3.5	138.1	4,595	3.3	152.4	3,270	3.3	109.3
"	B	4	19,091	701.9		4,772	3.6	175.4	5,580	3.3	185.4	4,250	3.6	155.6
Lorneville	A	4	23,085	747.4		5,771	3.2	186.8	9,430	2.9	272.4	3,870	2.8	116.0
Milton	A	4	44,485	1,514.1		6,355	3.4	216.3	8,940	3.3	299.5	4,400	3.5	156.8
Morewood	A	7	20,536	734.9		6,845	3.5	244.9	7,710	3.3	258.4	5,825	3.7	216.1
"	B	3	93,160	3,427.9		6,210	3.6	223.5	7,370	3.4	262.3	5,210	3.6	191.4
McDonald	A	15	63,843	2,216.4		4,256	3.4	147.7	5,460	3.1	185.4	2,890	3.4	98.8
"	B	9	33,070	1,184.8		3,674	3.5	131.6	4,595	3.4	159.4	3,160	3.5	109.8
"	C	20	65,733	2,579.1		3,286	3.9	128.9	4,280	3.8	166.9	1,855	4.3	79.3
"	D	11	43,362	1,576.2		3,942	3.6	143.2	4,890	3.7	182.6	2,615	4.0	154.7
Pine Grove	A	7	31,189	1,047.3		4,455	3.3	149.6	6,500	3.6	237.3	2,662	3.3	90.1
"	B	6	36,030	1,330.2		6,005	3.8	221.7	6,760	3.3	223.7	4,978	4.1	208.4
Prescott	A	26	140,891	5,019.8		5,419	3.5	193.0	7,600	3.2	243.9	2,942	3.4	100.0
"	B	6	33,583	1,113.4		5,597	3.3	185.5	6,605	3.5	235.4	3,765	3.1	118.3
Rockford	A	13	75,218	2,639.6		5,784	3.5	203.0	7,840	3.3	262.2	2,330	3.2	142.0
"	B	4	23,129	731.1		5,782	3.1	182.7	6,315	2.9	188.3	5,336	2.8	153.3
"	C	7	42,128	1,355.7		6,018	3.2	193.6	7,670	3.4	267.9	4,020	3.4	137.7
"	D	10	59,747	2,111.4		5,974	3.5	211.1	8,400	3.2	274.8	3,948	3.4	137.7
"	E	12	75,757	2,583.4		6,313	3.4	215.2	7,700	3.0	231.6	3,900	5.0	196.7
"	F	13	86,099	2,626.6		6,623	3.0	202.0	9,780	2.7	269.7	4,290	3.2	140.4
"	G	21	178,665	6,215.6		8,507	3.4	295.9	10,975	3.2	353.2	6,125	3.6	221.8
"	H	10	66,924	2,221.2		6,692	3.3	222.1	9,570	3.1	305.5	4,840	3.2	156.0
"	I	11	77,474	2,523.2		7,044	3.2	228.4	8,515	3.4	289.4	5,579	3.3	186.2
"	J	6	40,579	1,281.8		6,763	3.1	213.6	8,998	3.0	276.1	4,753	3.3	157.2
Sheffield	A	5	24,770	1,004.8		4,954	4.0	200.9	5,300	4.2	222.7	4,540	3.8	176.5
"	B	5	26,790	974.9		5,358	3.6	194.9	6,790	3.6	245.1	4,570	3.8	176.7
"	C	4	20,280	732.9		5,070	3.6	183.2	5,690	4.1	237.2	4,450	3.3	147.7
"	D	3	16,392	547.4		5,464	3.3	182.4	5,750	3.1	183.6	5,262	3.5	187.3



SESSIONAL PAPER No. 15a

Shearer. . . . .	A	9	59,231	2,001.1	6,581	3.3	. . . . .	222.3	8,240	3.0	254.2	5	3,887	3.3	130.9	2	3
" . . . . .	B	8	43,435	1,457.2	5,429	3.3	. . . . .	182.1	6,750	3.4	232.6	5	3,795	3.6	137.3	3	3
" . . . . .	C	11	55,610	1,890.0	5,055	3.4	. . . . .	171.8	6,575	3.3	220.8	8	4,125	3.6	249.7	11	3
Spring Creek. . . . .	A	10	69,492	2,300.3	6,949	3.3	. . . . .	230.0	9,180	2.3	259.7	9	5,310	3.1	167.1	10	11
" . . . . .	B	2	54,284	2,032.9	6,785	3.7	. . . . .	254.1	8,010	3.7	302.6	6	4,562	3.8	173.8	2	5
" . . . . .	C	8	59,345	1,971.8	7,418	3.3	. . . . .	246.3	9,950	2.9	298.0	4	4,930	3.7	185.4	8	5
" . . . . .	D	3	22,610	902.1	7,533	3.8	. . . . .	300.7	8,570	3.5	306.1	6	6,720	4.7	319.1	3	7
" . . . . .	E	4	22,650	824.1	5,662	3.6	. . . . .	206.0	6,920	3.2	223.1	7	5,040	3.3	169.6	4	7
" . . . . .	F	3	16,760	626.3	5,586	3.7	. . . . .	208.7	7,680	3.9	304.7	5	4,510	3.7	167.9	2	8
" . . . . .	G	11	56,996	1,885.8	5,187	3.3	. . . . .	171.4	7,850	3.2	251.9	9	3,930	2.8	107.5	11	7
" . . . . .	H	6	32,964	1,152.2	5,494	3.4	. . . . .	192.0	8,415	3.6	303.2	7	2,930	3.2	94.2	6	3
" . . . . .	I	8	39,473	1,366.7	4,934	3.4	. . . . .	170.8	6,360	3.5	228.0	4	4,085	3.6	147.8	8	3
" . . . . .	J	6	29,523	996.2	4,929	3.3	. . . . .	166.0	6,056	3.5	212.0	9	2,810	2.9	83.9	6	12
South Lanark. . . . .	A	8	38,540	1,433.6	4,817	3.7	. . . . .	179.7	6,410	3.4	223.4	6	2,765	4.1	113.7	8	3
" . . . . .	B	18	106,928	3,973.0	5,934	3.7	. . . . .	220.6	8,054	3.5	283.9	7	4,140	4.1	172.2	18	3
" . . . . .	C	13	110,152	3,346.5	6,119	3.2	. . . . .	197.0	7,250	3.2	231.6	9	4,591	3.1	143.7	13	7
" . . . . .	D	2	12,695	380.4	6,347	3.0	. . . . .	190.2	8,030	2.9	240.5	7	4,665	3.0	139.9	2	4
" . . . . .	E	12	49,320	1,657.6	4,110	3.3	. . . . .	138.1	5,360	3.0	160.9	4	2,840	3.5	99.7	12	3
" . . . . .	F	7	29,310	970.3	4,187	3.3	. . . . .	138.6	4,710	3.2	153.8	6	3,800	3.4	130.6	7	5
" . . . . .	G	9	33,921	1,236.3	3,768	3.6	. . . . .	137.3	4,575	3.5	164.0	7	2,884	3.7	108.2	9	3
" . . . . .	H	10	43,485	1,519.7	4,348	3.5	. . . . .	151.3	5,610	3.3	186.0	6	2,935	3.4	100.3	10	2
" . . . . .	I	13	43,163	1,606.4	3,220	3.7	. . . . .	123.5	4,109	3.9	163.3	6	2,605	3.5	92.4	13	3
Star. . . . .	A	1	6,810	208.8	6,810	3.0	. . . . .	208.8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
" . . . . .	B	2	12,400	388.1	6,200	3.1	. . . . .	191.0	6,490	3.2	210.9	8	5,910	2.9	177.2	2	7
" . . . . .	C	9	45,470	1,616.6	5,052	3.5	. . . . .	178.5	6,125	3.5	218.1	12	3,665	3.3	123.8	9	2
Frowbridge. . . . .	A	6	21,055	782.6	3,509	3.4	. . . . .	130.4	4,420	3.5	157.0	10	2,215	3.8	84.7	6	6
" . . . . .	B	4	17,696	817.7	4,424	4.6	. . . . .	204.4	5,278	4.6	244.2	7	3,740	4.9	186.5	4	7
Wallace . . . . .	A	7	23,420	825.6	3,340	3.5	. . . . .	117.9	4,004	3.3	132.1	9	2,570	3.8	98.0	7	3
" . . . . .	B	3	16,341	473.3	5,447	2.8	. . . . .	157.7	5,443	2.9	161.8	3	4,888	3.2	156.5	3	7
" . . . . .	C	4	20,307	640.7	5,076	3.1	. . . . .	160.1	5,945	3.1	188.3	7	4,175	3.9	164.1	4	3
Warsaw. . . . .	A	8	39,060	1,376.8	4,882	3.5	. . . . .	172.1	6,170	3.5	220.8	11	3,960	3.7	147.7	8	3
" . . . . .	B	20	133,645	4,260.8	6,632	3.2	. . . . .	213.0	7,865	3.1	246.6	6	4,930	3.1	157.2	. . . . .	. . . . .



1 GEORGE V., A. 1911

Table No. 1 is a summary of all Ontario cows recorded in our books for their full period of lactation in 1909. In many cases the herds include more cows than the number given in the third column, but records were not completed.

In looking over the figures here tabulated many contrasts may be noted. In the Avonbank association the 6 cows in herd R gave 4,942 pounds of milk more than the 6 in herd K. The 6 cows in Bobcaygeon herd A gave 11,920 pounds of milk less than the 6 in Brooksdale herd A, and actually *30,000 pounds of milk less* than the aforementioned 6 in Avonbank herd R. The 7 cows in herd F, Black Creek, gave 13,832 pounds of milk *more* than the 7 cows in herd C Bertie.

The two herds in Central Smith show a remarkable difference in the average yield; one is more than three times greater than the other.

In the Camlachie association the 4 herds of 5 cows each give total yields varying from twenty to thirty thousand pounds of milk.

The two herds in Dalmeny, of 17 cows each, show a difference in yield of 18,905 pounds of milk. There is almost that much difference in the yields of herds F and G in the Elma association, only 11 cows each; and over twenty thousand pounds difference between the 12-cow herds B and E.

Three herds in the Innerkip association, of 8 cows each, show another series of high step-like ascents, and the 12 cows in herd D give a little less than the 8 in herd E.

Between the 15 cows in Morewood herd B and McDonald herd A, there is almost 30,000 pounds of a difference in the total yield.

The herd of 9 cows in Star association gives almost 12,000 pounds of milk more than the 9 in the South Lanark herd G.

Innerkip herd H has an average yield of 10,865 pounds of milk from 4 cows, the poorest giving 9,708 pounds. This is in strong contrast to the average yield per cow of 2,811 pounds in Central Smith, and the 3,122 pounds as an average of 14 cows in Keene.

Herd B, Warsaw, has a noteworthy average of 6,632 pounds of milk for 20 cows.

Good individual yields of over 10,000 pounds of milk are included, and several of over 8,000 and 9,000 pounds.

In the column giving the yield of the poorest cow it will be noted that although many 2 and 3 year olds are included, there are cows aged 8 and 10 and 12 years that are responsible for very low yields. If 5,000 pounds of milk be taken as a minimum standard of production for a profitable cow, it would appear from this column that there is room for considerable weeding out. On the other hand, there is every evidence of a good deal of weeding having been done, as there are cows appearing in this column credited with over 6,000 and 8,000 pounds of milk, considerably more than the best cows in some herds.

Only one herd has an average test of less than 3.0 per cent of fat, and that is for only 3 cows. On the other hand, 76 herds tested 3.5 per cent and over.

A standard of at least 250 pounds of butter fat per cow is none too high for any herd in these days. Unfortunately far too many cows in this table are found below that, not only in the average yield of the herd and the yield of the poorest cow, but also in the column giving the yield of the best cow.

In Central Smith is found a good average of 285.9 pounds of fat from 14 cows, and in Rockford 21 cows are credited with an average of 295.9 pounds of fat. Such examples might well be copied to a far larger extent, which would quickly result in the elimination of some of the 8-year-old cows giving *less than 83 pounds of fat* during their full period of lactation. Can such cows be worth keeping?

If we take the yield of the best cow in each of 157 herds, we find that the average is 6,124 pounds of milk and 209 pounds of fat. As compared with this, the average yield of the poorest cows in the same herds is only 3,706 pounds of milk and 131 pounds of fat, or an average difference of 2,418 pounds of milk and 78 pounds of fat between the best cow and the poorest cow in these herds. This shows very clearly the necessity for improvement so as to bring the production of all the cows to a uniformly high level.



## SESSIONAL PAPER No. 15a

In Bright herd C the difference between the yields of the best and the poorest cow is 7,040 pounds of milk and 256 pounds of fat.

In table XIX. the average yield of Ontario cows is given as 5,481 pounds of milk and 191.6 pounds of fat. That there is room for considerable general improvement is evidenced by the fact that 74 herds in this table (No. 1) fall below that in the average yield per cow. In one association not one herd is up to it.

TABLE II.—Comparisons between Herds in the Province of Ontario for the Full Period of Lactation, 1909—(Milk only.)

NAME OF ASSOCIATION.	Herd.	No. of Cows.	TOTAL YIELD OF HERD.	AVERAGE YIELD PER COW.	BEST COW.		POOREST COW.	
			Milk.	Milk.	Yield of Milk.	Age.	Yield of Milk.	Age.
			Lbs.	Lbs.	Lbs.		Lbs.	
Black Creek .....	A	3	17,074	5,691	6,066	3	5,088	5
Belmont .....	A	5	28,397	5,679	6,327	7	4,526	4
Culloden .....	A	70	469,560	6,708	10,340	10	3,680	2
Mapleton .....	A	10	79,106	7,910	9,320	6	5,420	2
" .....	B	10	70,538	7,053	8,918	7	4,892	2
" .....	C	7	36,365	5,195	7,608	8	3,393	3
" .....	D	8	55,402	6,925	9,190	9	5,713	7
North Oxford .....	A	1	6,860	6,860	6,860	3	.....	.....
" .....	B	14	68,002	4,857	8,805	9	2,738	2
" .....	C	9	46,185	5,131	6,639	4	3,521	2
" .....	D	5	38,219	7,643	8,170	5	7,280	5
Oak Leaf .....	A	10	54,660	5,466	6,940	.....	3,720	.....
" .....	B	13	69,660	5,358	6,205	.....	4,450	.....
" .....	C	16	67,782	4,236	5,971	.....	2,979	.....

If the 16 cows in herd C, Oak Leaf, were as good as those in herd A, Mapleton, instead of 67,782 pounds of milk they would give 126,560 pounds, *nearly double*. The record of the Culloden herd is a brilliant example of what is being done by a real dairy farmer, not simply a keeper of cows. For such a large herd the average is exceptionally high.



TABLE III.- Comparisons between Herds in the Province of Ontario for Twelve Months Production, 1909.

NAME OF ASSOCIATION.	Herd.	TOTAL YIELD OF HERD.			AVERAGE YIELD OF HERD.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
		No. of Cows.	Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Lbs.	Milk.	Test.	Fat.	Age.
Avonbank.....	A	6	40,985	1,574.6	Lbs.	6,814	3.8	Lbs.	318.7	8,170	3.8	Lbs.	3
" .....	B	1	5,915	220.0					229.5	5,915	3.7		5
" .....	C	1	9,485	322.3					322.3	9,485	3.3		13
" .....	D	1	9,080	311.3					411.3	9,080	3.4		3
" .....	E	1	5,200	194.5					194.5	5,200	3.7		4
" .....	F	1	6,925	264.3					264.3	6,925	3.8		11
Black Creek .....	A	2	15,216	518.3		7,608	3.4		259.1	8,036	3.1		5
" .....	C	3	28,064	370.2		9,354	3.4		323.4	13,764	3.3		10
" .....	D	7	50,297	1,681.2		7,185	3.3		240.1	8,796	3.1		10
" .....	E	7	61,276	1,964.6		8,753	3.2		280.6	11,410	3.2		6
" .....	F	3	19,526	900.8		6,508	4.6		300.2	8,280	3.4		6
Bright.....	A	3	18,536	805.8		6,178	4.3		268.6	7,921	3.0		7
East and West Oxford .....	A	7	62,644	2,161.5		8,947	3.4		309.1	12,115	3.1		7
Inniskip .....	A	10	72,282	2,379.4		7,228	3.2		327.9	9,421	3.3		6
" .....	B	8	76,855	2,529.7		9,606	3.2		316.2	12,972	2.9		6
Kerwood .....	A	8	33,520	1,309.9		4,190	3.9		163.7	5,830	3.3		7
Pine Grove.....	A	2	15,065	498.9		7,531	3.3		249.4	8,150	2.9		8
" .....	B	1	5,372	273.8						5,372	5.0		2
Shearer .....	A	1	9,075	257.6						9,075	2.8		8
" .....	B	1	8,950	320.0						8,950	3.6		12
Spring Creek.....	A	2	16,640	566.7		8,320	3.4		283.3	9,390	3.3		3
" .....	B	6	45,052	1,617.7		7,675	3.5		269.6	8,560	2.6		7
" .....	C	2	17,940	528.8		8,970	2.9		264.4	11,010	3.1		6
" .....	D	2	22,100	782.6		11,050	3.5		391.3	13,810	2.8		8
Black Creek .....	B	8	44,264			5,533				6,611			10
North Oxford.....	A	1	5,100			5,100				5,100			15

Note the 6 individual yields of upwards of 11,000 lbs. of milk, one yield more than 4 times as much as the 10-year-old cow at Kerwood.



SESSIONAL PAPER No. 15a

TABLE IV.—Comparisons between Individual Herds in the Province of Ontario for Full Period of Lactation, 1909.

HERD.	No. of Cows.	TOTAL YIELD OF HERD.	AVERAGE YIELD PER COW.	BEST COW.		POOREST COW.	
		Milk.	Milk.	Yield of Milk.	Age.	Yield of Milk.	Age.
		Lbs.	Lbs.	Lbs.		Lbs.	
A	4	26,591	6,647	8,927	6	5,089	3
B	18	114,107	6,339	7,893	5	4,564	11
C	3	12,075	4,018	5,811	8	3,068	6
D	1	4,271	4,271	4,271	2	.....	.....
E	2	13,867	6,933	7,133	5	6,736	3
G	10	52,705	5,270	6,543	5	3,234	4
H	19	86,024	4,527	5,723	.....	2,937	.....

Herd B with 18 cows exceeds the total yield of herd H with 1 cow more by 28,083 pounds of milk.

TABLE V.—Comparisons between Individual Herds in the Province of Ontario for Twelve Months' Production, 1909.

HERD.	No. of Cows.	TOTAL YIELD OF HERD.	AVERAGE YIELD PER COW.	BEST COW.		POOREST COW.	
		Milk.	Milk.	Yield of Milk.	Age.	Yield of Milk.	Age.
		Lbs.	Lbs.	Lbs.		Lbs.	
F	1	8,872	8,872	8,872	8	.....	.....
I	7	53,915	7,702	8,168	5	7,193	3
J	5	32,969	6,592	6,565	.....	4,390	.....



TABLE VI.—Comparisons between Herds in the Province of Quebec for the Full Period of Lactation, 1909.

NAME OF ASSOCIATION.	Herd.	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
		No. of Cows	Milk. Lbs.	Fat. Lbs.	Milk. Lbs.	Test.	Fat. Lbs.	Milk. Lbs.	Test.	Fat. Lbs.	Milk. Lbs.	Test.	Fat. Lbs.
Clarenceville	A	4	17,728	635.1	4,432	3.5	158.8	4,756	3.6	170.1	3,872	3.4	132.0
"	B	5	22,809	828.8	4,561	3.6	165.7	5,824	3.4	199.1	3,800	3.5	135.1
"	C	12	49,639	1,833.2	4,136	3.7	152.8	5,600	3.2	182.4	2,390	3.8	88.8
Coaticook	A	9	38,094	1,517.5	4,232	4.0	171.9	5,430	4.0	222.2	3,071	4.1	128.4
Compton	A	13	65,357	2,559.5	5,027	3.9	196.9	8,044	4.3	316.1	3,364	4.4	149.5
"	B	11	40,195	1,538.6	3,681	3.8	139.9	5,210	3.8	199.7	2,864	3.8	107.2
Cowansville	A	16	104,231	5,090.8	6,514	4.8	318.1	10,423	4.3	455.2	4,143	5.2	215.0
"	B	17	102,430	3,930.5	6,025	3.8	231.2	8,495	3.7	317.7	4,029	3.6	157.5
"	C	18	115,311	4,736.6	6,406	4.1	263.1	9,050	3.8	344.7	4,764	4.0	190.8
Dairy Valley	A	11	58,301	1,982.6	5,300	3.4	180.2	8,290	4.0	336.5	3,490	3.2	113.8
"	B	6	16,801	679.1	2,800	4.0	113.2	3,736	4.3	162.3	2,100	3.8	80.2
"	C	8	25,160	914.3	3,145	3.6	114.2	4,540	3.5	161.5	2,216	3.7	82.9
Dixville	A	11	45,427	2,885.6	4,129	4.4	262.3	5,567	4.5	233.4	2,810	4.8	135.4
"	B	10	31,217	1,269.8	3,121	4.0	126.9	4,050	3.6	159.1	2,082	3.4	72.2
"	C	12	50,983	2,085.9	4,248	3.8	165.5	5,575	3.7	210.4	2,630	3.7	98.0
Foster	A	15	61,348	2,794.6	4,090	4.5	186.3	5,444	4.4	245.0	2,510	4.6	117.9
"	B	13	48,817	2,080.1	3,757	4.2	160.0	5,030	3.9	199.7	2,235	4.2	94.6
"	C	16	42,932	1,745.4	2,683	4.0	109.0	3,415	4.2	145.0	2,121	3.9	84.4
"	D	12	40,282	1,419.1	3,356	3.5	118.2	4,430	3.4	150.3	1,798	3.6	65.2
Henryville	A	11	33,891	1,330.3	3,081	3.9	120.9	3,330	3.9	132.3	1,730	4.0	109.3
Les Écureuils	A	20	96,610	3,704.0	4,830	3.8	185.2	5,950	4.0	241.3	4,150	3.6	150.2
Marbleton	A	11	55,196	2,104.2	5,017	3.8	191.2	6,840	3.6	250.3	3,239	3.5	113.2
"	B	8	29,608	1,048.0	3,701	3.5	131.0	5,404	2.9	159.6	2,946	3.6	108.7
"	C	7	32,839	1,234.5	4,691	3.7	176.3	5,848	3.9	228.5	3,905	3.7	144.2
"	D	9	32,297	1,243.1	3,588	3.8	138.1	4,155	4.5	190.7	2,855	3.8	108.9
North Hatley	A	5	25,807	1,048.3	5,179	3.9	209.6	4,155	4.5	190.7	2,855	3.8	108.9
"	B	11	44,540	1,624.6	4,049	3.6	147.6	6,540	4.3	279.0	4,345	3.9	173.1
"	C	7	33,546	1,393.6	4,792	4.1	199.0	6,260	3.5	239.2	3,120	3.4	108.7
Notre Dame de Stanbridge	A	10	38,710	1,480.0	3,871	3.8	148.0	5,280	3.5	184.4	3,270	4.2	138.8
"	B	7	27,755	980.1	3,955	3.5	140.0	4,950	3.1	153.5	2,760	5.0	138.9
"	A	5	20,553	765.3	4,110	3.7	153.0	4,775	3.8	181.7	2,270	3.5	79.8
Ormstown	B	11	79,048	2,672.4	7,186	3.3	242.9	9,579	3.2	318.8	3,635	3.7	136.9
"	C	9	55,643	2,300.9	6,182	4.1	255.6	7,675	4.7	363.1	5,092	3.4	174.4
"	D	16	73,131	2,957.1	4,570	4.0	184.8	6,026	4.2	257.6	4,370	4.2	183.8
"	E	12	71,520	2,893.5	5,960	4.0	241.1	7,470	4.1	310.7	3,502	3.7	130.6
"	F	17	100,794	4,031.9	5,929	4.0	287.1	8,950	4.8	431.0	4,230	4.0	173.2
"	G	24	176,761	6,967.0	7,365	3.9	290.0	9,880	3.9	393.9	4,260	3.9	169.3



## SESSIONAL PAPER No. 15a

Richmond	10	39,189	1,555.8	3,918	4.0	154.5	5,440	3.7	203.0	8	2,085	4.3	89.5	3
"	20	89,741	2,378.7	4,487	3.7	168.9	6,212	3.7	234.4	8	2,847	3.8	107.3	5
"	19	111,072	4,104.6	5,845	3.7	216.0	7,370	3.6	270.0	10	3,520	4.0	143.7	8
St. Armand	11	50,502	1,718.4	4,591	3.3	155.3	5,610	3.3	186.5	6	3,630	3.6	133.6	11
"	14	54,476	2,529.8	3,891	4.6	180.6	6,800	4.4	299.3	6	2,515	4.7	119.7	10
"	5	28,037	1,155.3	5,605	4.1	231.0	6,490	4.2	276.5	9	2,865	4.9	141.2	2
"	21	99,923	3,960.5	4,948	3.8	188.5	5,945	3.7	223.2	4	3,475	3.7	124.6	12
"	31	154,385	5,913.3	4,980	3.8	190.7	7,200	3.6	265.7	12	3,110	4.1	128.4	3
"	15	91,137	3,573.7	6,095	3.9	238.2	9,805	4.1	405.0	11	4,740	3.9	187.3	2
"	5	17,474	737.0	3,494	4.2	147.2	3,883	4.3	170.1	9	3,055	4.5	138.3	11
"	2	8,991	358.6	4,495	3.9	179.3	5,080	4.1	212.2	6	3,911	3.7	146.4	9
"	2	13,014	536.4	6,507	4.0	268.2	7,566	4.0	309.1	7	5,448	4.1	227.3	3
St. Clet	6	20,285	802.1	3,380	3.9	133.6	4,110	3.8	161.1	.....	2,585	4.5	117.6	.....
"	6	28,371	1,011.1	4,728	3.5	168.5	5,550	3.4	188.7	10	3,333	3.3	112.0	3
"	3	17,098	661.5	5,696	3.8	220.5	6,183	4.0	251.2	3	4,765	3.6	174.6	2
St. Edouard	4	21,250	832.9	5,312	3.8	208.2	6,140	4.0	246.7	10	4,360	3.8	167.1	3
St. Edwidge	8	41,846	1,339.2	5,230	3.1	167.2	6,691	3.1	208.9	8	3,760	3.1	127.0	3
"	14	77,366	2,733.6	5,525	3.5	195.2	6,540	3.3	218.9	13	3,964	3.5	141.2	10
"	2	37,618	1,327.6	4,702	3.5	165.9	5,092	3.4	177.0	.....	4,290	3.3	143.5	.....
Ste. Emelie	3	11,576	514.2	3,858	4.4	171.4	4,071	4.1	169.0	11	3,635	4.7	174.0	6
"	6	21,823	895.2	3,637	4.1	149.2	3,929	4.0	158.1	6	3,370	4.0	137.1	9
"	8	30,800	1,332.7	3,870	4.3	166.5	4,570	4.2	192.3	8	2,505	4.3	109.9	2
"	6	31,160	1,301.9	5,193	4.1	216.9	5,830	4.3	254.1	11	4,856	4.2	184.9	4
"	6	23,360	971.0	3,893	4.1	161.8	4,240	4.2	178.5	6	3,450	4.1	141.9	4
"	5	17,844	794.1	3,568	4.4	158.8	4,550	4.8	222.6	.....	2,280	4.6	106.7	.....
St. Prosper	18	124,524	5,239.7	6,862	4.2	291.0	10,710	4.0	430.1	10	5,143	4.0	210.2	3
"	2	9,072	373.5	4,536	4.1	186.7	4,639	4.1	190.5	12	4,433	4.1	183.0	11
"	5	27,785	1,166.6	5,557	4.2	233.3	6,221	4.1	256.1	14	4,404	4.1	183.6	3
"	8	50,101	1,928.4	6,262	3.8	241.0	7,265	3.7	272.5	5	5,225	3.8	200.6	4
"	6	25,874	1,037.2	4,312	4.0	172.8	4,935	3.9	193.2	10	3,825	4.1	156.9	8
"	5	23,262	964.5	4,652	4.1	192.9	4,890	4.2	208.0	16	4,415	4.1	183.2	12
Verchères	11	49,642	2,011.2	4,512	4.0	182.8	5,830	4.0	235.0	9	3,402	4.4	147.3	8
Rigaud	11	59,720	.....	5,429	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
"	9	46,479	.....	5,164	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
"	8	39,039	.....	4,879	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Jules	5	22,650	.....	4,520	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....



1 GEORGE V., A. 1911

In table VI the associations at Henryville, Compton, Dixville and Dairy Valley have herds of eleven cows whose total yield of milk is 33,891, 40,495, 45,427 and 58,301 pounds respectively. It seems remarkable to find such a difference, actually 24,410 pounds of milk, between the total yields of two herds of the same number of cows.

At Foster and Dairy Valley are found two very low average yields for herds, under 3,000 pounds of milk, while at Ormstown there is an average yield of 7,365 pounds of milk for twenty-four cows.

There are several good individual yields of 8,000, 9,000 and 10,000 pounds of milk, and in the column giving the yields of the best cow in each herd are found mature animals of eleven, twelve, fourteen and sixteen years of age.

Two or three of the lowest yields of milk, under 3,000 pounds, are from eleven and twelve-year olds.

A prominent feature of this table is the number of cows giving upwards of 200 pounds of butter fat, showing that satisfactory and profitable yields are being obtained. These should stimulate men in other parishes.

The best cow in herd A, Cowansville, gives more than *six times as much* butter fat as the 7-year old poorest cow in herd B, Dixville.

In many herds are found good cows giving twice as much butter fat as poor cows in the same herd. In herd A, Dairy Valley, the 9-year old cow gives *only one-third* as much fat as the 5-year old.

The eleven cows in herd B, Ormstown, give 5,917 pounds of milk more than the sixteen in herd D.

In Dairy Valley, herd A averages 5,300 pounds of milk against 2,800 for herd B, equivalent to \$25 per cow per year more income.

The total yield of herd E, St. Armand, is 31,673 pounds of milk greater than the yield from the fifteen cows in herds F, G, H and I.

In several herds are to be found differences of 4,000 and 5,000 pounds of milk, while in herd A, Cowansville, and herd F, Ormstown, there is over 6,000 pounds difference between the highest and lowest yields of milk.

The average yield of the best cow in each of the sixty-nine herds is 6,050 pounds of milk, 3.9 test and 239.3 pounds of fat while that of the poorest cow in each of the same herds is 3,448 pounds of milk, 3.9 test and 137.3 pounds of fat, thus indicating a difference of 2,602 pounds of milk and 102 pounds of fat. This is typical of the difference in probably almost all of our dairy herds to-day, and illustrative of the great need of this plan of arriving at a knowledge of individual yields rather than totals or averages. These wide gaps need closing up. Selection of the good cows, on the record of their total production, will speedily result in the establishment of herds showing not only a higher, but a more uniformly good yield.

TABLE VII.—Comparisons between Individual Herds in the Province of Quebec for the Full Period of Lactation, 1909.

Herd.	No. of Cows.	TOTAL YIELD OF HERD.	AVERAGE YIELD COW.	BEST COW.		POOREST COW.	
		Milk.	Milk.	Yield of Milk.	Age.	Yield of Milk.	Age.
		Lbs.	Lbs.	Lbs.		Lbs.	
A	8	36,619	4,577	5,240	6	3,770	2
B	3	23,823	7,941	8,568	10	7,292	11
FOR PERIOD OF TWELVE MONTHS PRODUCTION, 1909.							
B	3	24,736	8,245	9,865	10	6,489	6



SESSIONAL PAPER No. 15a

TABLE VIII.—Comparisons between Herds in the Province of British Columbia for the Full Period of Lactation, 1909.

NAME OF ASSOCIATION.	Herd.	No. of Cows.	TOTAL YIELD OF HERD			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.				
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
Cowichan	A	2	7,971	296.7	3,985	3.6	143.3	192.5	5,663	3.2	192.5	11	2,308	4.5	104.2	2
"	B	4	18,353	648.1	4,588	3.5	162.0	184.5	5,452	3.3	184.5	6	4,092	3.9	161.5	4
"	C	1	3,897	133.2	3,897	3.4	133.2	133.2	3,897	3.4	133.2	9				
"	D	1	5,105	245.7	5,105	4.7	245.7	245.7	5,105	4.7	245.7	2				
"	E	2	12,525	544.4	6,262	4.3	272.2	335.7	7,525	4.4	335.7	11	5,000	4.1	208.7	
"	F	2	12,724	555.8	6,362	4.3	277.9	285.2	6,650	4.2	285.2	5	6,074	4.4	270.6	7
"	G	6	31,605	1,383.2	5,267	4.3	230.5	257.3	5,920	4.3	257.3	12	4,630	4.3	200.0	4
"	H	1	7,852	361.3	7,852	4.6	361.3	361.3	7,852	4.6	361.3	5				
"	I	2	5,740	205.0	2,870	3.5	102.5	130.6	3,620	3.6	130.6		2,120	3.5	74.4	
"	J	2	10,670	416.6	5,335	3.9	208.3	211.7	5,435	3.9	211.7		5,235	3.9	204.9	
"	K	4	19,195	794.1	4,798	4.1	198.5	235.4	5,575	4.2	235.4	7	3,580	4.3	156.9	2
"	L	2	5,470	308.8	2,735	5.6	154.4	146.0	3,050	4.7	146.0	2	2,420	6.7	162.8	3
"	M	3	15,975	683.3	5,325	4.2	227.7	265.1	6,965	3.8	265.1	7	3,605	4.5	165.1	3
"	N	3	9,720	443.2	3,240	4.5	147.7	179.0	3,535	5.0	179.0	2	2,915	3.9	114.8	2
"	O	2	8,394	373.7	4,197	4.4	186.8	176.6	4,295	4.1	176.6	2	4,099	4.8	197.1	8
"	P	1	4,675	237.4	4,675	5.0	237.4	237.4	4,675	5.0	237.4	11				
"	Q	4	11,677	438.5	2,919	3.8	109.6	124.6	3,385	3.6	124.6	6	2,152	4.4	95.1	6
"	R	5	19,095	846.7	3,819	4.4	169.3	195.8	4,615	4.2	195.8	4	2,750	4.8	132.1	2
"	S	2	11,685	433.6	5,842	3.7	216.8	246.1	6,990	3.5	246.1	9	4,695	3.9	187.5	4
"	T	3	15,601	553.2	5,200	3.5	184.4	218.2	6,502	3.3	218.2	6	4,481	3.9	175.2	6
"	U	2	9,825	417.4	4,912	4.2	208.7	217.8	5,305	4.1	217.8	5	4,520	4.4	199.6	6
Comox	A	5	28,945	1,176.2	5,789	4.0	233.2	262.2	6,295	4.1	262.2	4	5,110	3.6	184.8	5
"	B	3	10,700	409.9	3,566	3.8	136.6	148.3	4,270	3.4	148.3	10	3,060	3.9	122.2	6
"	C	1	5,027	299.6	5,027	5.9	299.6	299.6	5,027	5.9	299.6	2				
"	D	8	38,139	1,616.8	4,767	4.2	202.1	222.2	5,980	3.7	222.2	9	3,367	4.8	161.5	2
"	E	7	25,520	1,140.6	3,645	4.4	162.9	229.1	5,020	4.5	229.1	4	2,550	5.6	143.7	6
"	F	9	24,803	990.3	2,997	3.7	110.0	123.2	3,665	3.5	123.2	8	1,915	4.9	94.2	2
"	G	1	5,777	243.6	5,777	4.2	243.6	243.6	5,777	4.2	243.6	8				
Chilliwack.	A	11	44,172	1,571.9	4,015	3.5	142.9	171.3	5,202	3.2	171.3	5	3,095	3.4	108.6	2
"	B	4	34,840	1,093.0	8,710	3.1	274.2	283.0	9,500	2.9	283.0	7	7,760	3.1	245.7	5
Eden Bank	A	3	22,410	807.0	7,479	3.6	269.0	244.6	8,130	3.6	244.6	7	6,600	3.8	254.5	7
"	B	3	19,094	723.6	6,354	3.8	241.2	298.9	7,614	3.9	298.9	5	5,390	4.1	218.5	2
"	C	5	32,930	1,145.8	6,586	3.4	229.7	232.0	7,540	3.0	232.0	8	5,550	3.5	204.4	3
"	D	6	39,586	1,363.4	6,597	3.5	231.5	262.3	8,380	3.1	262.3	10	5,090	3.8	198.4	
"	E	1	6,624	294.2	6,624	4.4	294.2	294.2	6,624	4.4	294.2	8				
"	F	5	25,830	1,113.3	5,166	4.3	222.6	311.5	7,120	4.3	311.5		3,250	3.2	104.5	3
"	G	5	33,463	1,177.9	6,692	3.5	235.5	238.5	7,565	3.1	238.5		5,080	3.7	188.7	4
Islands	A	1	5,475	304.4	5,475	5.5	304.4	304.4	5,475	5.5	304.4	6				
"	B	1	5,090	226.1	5,090	4.1	226.1	226.1	5,090	4.4	226.1	2				
Nanaimo	A	2	9,025	440.6	4,512	4.8	220.3	239.1	4,650	5.1	239.1	3	4,375	4.6	201.5	2
"	B	1	5,510	272.2	5,510	4.9	272.2	272.2	5,510	4.9	272.2	4				
"	C	6	32,950	1,199.8	5,491	4.5	249.9	285.5	6,730	4.2	285.5	10	4,040	4.4	178.9	3
"	D	2	13,330	565.8	6,665	2.2	282.9	291.3	6,810	4.1	291.3	3	6,520	4.2	274.5	



1 GEORGE V., A. 1911

In table VIII, the highest yield of milk, 9,500 pounds, is found in herd B, Chilliwack. In the same column is a yield of only 3,050 pounds of milk, in herd L, Cowichan. There are promising yields of over 5,000 pounds of milk from heifers, also in the same column.

The yield of butter fat from the best cow runs from 124.6 pounds from a 6-year old cow in herd Q, Cowichan, up to 361.3 pounds from a 5-year old in herd H, Cowichan.

Herd F, Comox, has an average yield of 2,997 pounds of milk, but herd A has an average of 5,789 pounds *more* per cow.

In the column giving the yields of the poorest cows the variation is from 74.4 pounds of fat up to 274.5 pounds of fat, *almost four times as much*. In the same column are some heifers yielding over 300 pounds of fat.



SESSIONAL PAPER No. 15a

TABLE IX.—Comparisons between Herds in the Province of British Columbia for Twelve Months Production, 1909.

NAME OF ASSOCIATION.	Herd.	No. of Cows.	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
			Milk.	Fat.	Lbs.	Milk.	Test.	Lbs.	Milk.	Test.	Lbs.	Milk.	Test.	Lbs.
Cowichan.....	A	11	49,632	2,234.5		4,512	4.9	203.1	8,410	4.5	293.6	2,605	4.9	126.9
".....	B	5	28,704	1,074.9		5,710	3.7	214.9	8,518	3.3	281.8	3,954	3.8	153.6
".....	C	12	51,004	2,031.5		4,250	3.9	169.2	6,196	3.5	222.4	2,052	5.5	114.6
".....	D	12	51,596	2,052.4		4,298	3.9	171.0	5,643	3.1	185.0	3,288	4.7	154.2
".....	E	4	12,587	446.9		3,146	3.5	111.7	3,764	3.5	135.3	2,349	3.7	88.5
".....	F	3	20,385	899.1		6,794	4.4	299.7	7,495	4.0	303.8	5,790	4.7	270.7
".....	G	7	52,992	2,366.7		7,570	4.4	338.1	9,415	3.8	358.6	4,700	5.4	253.9
".....	H	9	57,960	2,653.6		6,440	4.5	293.7	9,020	3.7	338.6	4,330	5.1	224.3
".....	I	4	29,868	1,412.1		7,467	4.7	353.0	9,020	4.5	408.7	5,170	6.9	361.6
".....	J	5	22,605	1,047.3		4,521	4.6	209.5	5,740	4.6	266.0	3,225	4.7	154.6
".....	K	4	19,872	704.6		4,963	3.5	176.1	5,820	3.5	205.1	4,280	3.7	161.4
".....	L	3	16,707	714.1		5,569	4.2	234.7	5,675	4.2	238.8	5,514	4.4	244.8
".....	M	3	18,375	911.1		6,125	4.9	303.7	7,165	5.1	369.7	5,340	4.9	262.2
".....	N	6	29,561	1,516.8		4,926	5.1	252.8	5,896	4.5	268.6	4,050	4.9	203.1
".....	O	3	22,882	918.0		7,627	4.0	306.0	8,855	4.3	381.7	6,680	3.8	256.9
".....	P	8	46,510	2,160.8		5,813	4.6	270.1	8,195	4.1	342.7	4,375	4.7	197.4
".....	Q	4	20,468	953.3		5,117	4.6	238.3	6,955	4.4	309.1	3,920	4.9	195.3
".....	R	2	11,538	581.7		5,764	5.0	290.8	6,261	4.5	282.7	5,277	5.6	299.0
".....	S	4	23,255	910.4		5,663	4.0	227.6	6,795	3.7	252.7	4,495	3.9	175.5
".....	T	7	52,216	2,244.7		7,459	4.3	320.6	8,918	4.2	378.7	6,060	5.3	326.8
".....	U	1	4,005	171.5		4,005	4.2	171.5	4,005	4.2	171.5			
".....	V	1	10,560	407.4		10,560	3.1	407.4	10,560	3.1	407.4			
".....	W	3	21,620	883.4		7,206	4.0	294.4	9,630	3.9	381.3	5,540	3.6	202.5
".....	X	9	50,913	2,016.6		5,657	3.7	224.0	6,505	3.4	224.5	3,548	5.2	174.7
".....	Y	2	12,260	568.6		6,130	4.6	284.3	7,020	4.6	329.2	5,240	4.5	239.4
Comox.....	A	7	47,919	1,985.8		6,845	4.1	283.6	8,215	4.2	348.7	4,760	3.8	184.5
".....	B	3	16,351	921.3		5,450	5.6	307.1	6,165	5.6	348.1	5,008	5.5	275.1
".....	C	4	11,240	507.6		1,810	4.5	126.9	3,405	3.9	132.8	2,240	4.2	94.6
Chilwack.....	A	8	67,300	2,028.7		8,412	3.0	253.5	10,365	3.0	311.4	6,395	2.9	184.8
Eden Bank.....	A	1	5,750	207.1		5,750	3.6	207.1	5,750	3.6	207.1			
".....	B	1	4,715	227.5		4,715	4.8	227.5	4,715	4.8	227.5			
".....	C	3	26,381	939.3		8,793	3.6	313.1	9,885	3.2	317.3	7,936	3.8	304.4
".....	D	6	38,277	1,819.1		6,379	4.7	303.1	7,614	4.5	345.7	5,345	4.8	261.5
".....	E	15	101,570	4,164.8		6,771	4.1	277.6	9,160	3.4	318.2	5,050	4.4	225.2
Nanaimo.....	A	4	22,411	976.4		5,627	4.1	244.1	6,180	4.7	295.2	5,115	4.2	219.3
".....	B	7	41,910	1,997.5		5,987	5.7	285.3	7,640	4.8	366.8	4,375	5.5	242.6
".....	C	4	24,365	1,045.8		6,091	4.2	261.4	7,710	3.7	291.8	4,984	4.7	234.4
".....	D	4	25,222	1,125.3		6,305	4.4	281.3	7,580	3.9	301.1	5,512	4.7	261.6
Islands.....	A	4	27,920	1,404.3		6,980	5.0	351.0	8,260	4.8	403.5	5,605	4.2	237.5



1 GEORGE V., A. 1911

In table IX the yield of the best cow in herd E; Cowichan, is 3,764 pounds of milk and 135.3 pounds of fat, but in several herds the best cow gives over 8,000 and 9,000 pounds of milk. In herd I, is a yield of 408.7 pounds of fat, *more than three times* as much.

Herd A, Comox, has a total yield of 47,919 pounds of milk, or 20,328 pounds more than the 7 cows in herds B and C.

In Eden Bank is found a good average of 6,771 pounds of milk and 277.6 pounds of fat from a herd of 15 cows.

One of the best averages is found in herd A, Chilliwack, where 8 cows are credited with 8,412 pounds of milk, which average is materially helped by the 3-year old giving 10,365 pounds of milk.

A three-year-old in herd A, Islands, has one of the best yields of fat, 403.5 pounds.



SESSIONAL PAPER No. 15a

TABLE X.—Comparisons between Herds in the Province of Nova Scotia for the Full Period of Lactation, 1909.

NAME OF ASSOCIATION.	Herd.	Number of Cows.	TOTAL YIELD OF HERD.		AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.			
			Milk.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.
Brookfield.....	A	2	Lbs. 9,395	Lbs. 350.4	Lbs. 4,697	3.7	Lbs. 175.2	Lbs. 4,990	3.4	Lbs. 170.9	Lbs. 4,405	4.0	Lbs. 179.5	7
" .....	B	5	15,960	553.3	3,192	3.4	110.6	4,170	3.4	141.9	2,350	3.1	72.9	12
" .....	C	3	11,695	477.4	3,898	4.0	159.1	4,285	3.7	160.8	3,620	3.8	138.9	4
" .....	D	1	3,130	118.6	3,130	3.7	118.6	3,130	3.7	118.6	.....	.....	.....	.....
Scotsburn.....	A	3	14,999	739.7	4,999	4.9	246.5	5,937	4.8	290.3	3,969	4.6	192.5	11
" .....	B	4	18,221	850.5	4,355	4.6	912.6	5,685	4.3	248.4	3,061	4.6	143.2	2
" .....	C	2	10,032	406.9	5,016	4.0	263.4	5,103	4.0	208.9	4,929	4.0	198.0	7
" .....	D	3	13,691	608.3	4,563	4.4	202.7	5,147	4.5	232.1	4,211	4.5	191.4	4

Probably herd B, Brookfield, could afford to replace the 12-year-old giving only 72.9 pounds of fat  
The average yields per cow at Scotsburn are all over 200 pounds of fat and better results still are confidently expected there.



TABLE XI.--Comparisons between Herds in the Province of Prince Edward Island for the Full Period of Lactation, 1909.

NAME OF ASSOCIATION.	Herd.	Number of Cows.	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.			
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.
Cornwall.....	A	7	Lbs. 20,292	Lbs. 1,112.1	Lbs. 4,184	Lbs. 4,184	3.7	Lbs. 158.8	Lbs. 5,720	3.8	Lbs. 221.8	Lbs. 2,810	4.0	Lbs. 114.7	3
Crapaud .....	A	2	7,697	285.0	3,848	3,848	3.7	142.5	4,440	3.4	156.1	3,257	3.9	128.9	3
" .....	B	9	40,720	1,518.8	4,524	4,524	3.7	168.7	5,755	3.3	191.6	3,185	4.0	128.1	3
" .....	C	6	22,086	826.7	3,681	3,681	3.7	137.7	4,310	3.7	163.7	3,110	3.4	107.1	3
Hampton and Tryon ..	A	4	19,750	804.0	4,937	4,937	4.0	201.0	5,150	3.4	175.7	4,475	3.7	166.4	3
" .....	B	2	11,980	464.0	5,990	5,990	3.9	232.0	6,240	3.7	235.1	5,740	3.9	228.9	10
Marshfield.....	A	1	5,150	217.7	5,150	5,150	4.2	217.7	5,150	4.2	217.7	.....	.....	.....	.....
" .....	B	3	10,065	387.6	3,355	3,355	3.8	129.2	4,060	3.5	146.5	2,860	4.0	115.8	.....
" .....	C	8	44,956	1,647.4	5,619	5,619	3.6	205.9	6,740	3.5	237.0	4,050	3.8	157.1	3
" .....	D	3	14,791	610.0	4,930	4,930	4.1	203.3	6,858	3.8	260.4	4,310	4.3	188.8	.....
" .....	E	3	12,135	456.3	4,044	4,044	3.7	152.1	4,365	3.7	163.5	3,575	3.9	139.7	9
New Glasgow.....	A	4	22,025	808.8	5,506	5,506	3.6	202.2	6,470	3.4	223.6	3,940	3.9	155.5	4
" .....	B	1	5,587	209.7	5,587	5,587	3.7	209.7	5,587	3.7	209.7	.....	.....	.....	.....
" .....	C	2	11,054	421.6	5,527	5,527	3.8	210.8	6,375	3.9	249.5	4,679	3.6	172.1	7
" .....	D	3	13,415	497.9	4,471	4,471	3.7	165.9	4,995	3.6	183.3	4,010	3.7	152.4	5
" .....	E	6	25,310	959.0	4,218	4,218	3.8	159.8	5,190	3.9	210.0	2,800	3.6	102.0	2
New Perth .....	A	8	35,647	1,314.9	4,455	4,455	3.6	164.3	5,004	3.6	184.9	3,444	3.9	133.5	9

In the column for average yield per cow are found with only two exceptions, yields of over 4,000 pounds of milk in all the herds tabulated. Many of the yields of the best cows are over 6,000 pounds of milk. The dairy cow can evidently be handled to good advantage in this province.



SESSIONAL PAPER No. 15a

TABLE XII.—Comparisons between Herds in the Province of Prince Edward Island for Twelve Months Production, 1909.

NAME OF ASSOCIATION.	Herd.	No. of Cows.	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.
New Glasgow.....	A	1	6,725	249.0	Lbs.	6,725	3.7	Lbs.	6,725	3.7	Lbs.	.....	.....	.....
".....	B	1	6,690	234.0	Lbs.	6,690	3.1	Lbs.	6,690	3.1	Lbs.	.....	.....	.....
Marshfield.....	B	1	5,235	156.8	Lbs.	5,235	2.9	Lbs.	5,235	2.9	Lbs.	.....	.....	.....
".....	C	1	8,285	372.9	Lbs.	8,285	4.5	Lbs.	8,285	4.5	Lbs.	.....	.....	.....

Viewing the records given above in tables X, XI and XII, it is seen that the old time definition of a dairy cow as one that would give a hundred weight of butter in a year is not applicable nowadays.

In New Brunswick and Prince Edward Island are found cows in the column for yields of poorest cows that are giving over 200 pounds of fat, and in those tabulated for Nova Scotia are cows that almost touch that level.

The four herds at Scotsburn, N.S., show a fairly good average test and yield of fat per cow, and far better results are confidently looked for in this section.

Herd C at Marshfield, P.E.I., has a good total yield, considerably ahead of herd A, New Perth, and herd B, Crapaud, which has one cow more.

In herd A, Cornwall, the best yield of milk is more than twice as much as the poorest, while in herd A, Hampton and Tryon, there is only 675 pounds of milk and 9 pounds of fat difference between the best and poorest cows.



TABLE XIII.—Comparisons between Herds in the Province of New Brunswick for the Full Period of Lactation, 1909.

NAME OF ASSOCIATION.	Herd	No. of Cows	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.			
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.
Berwick.....	A	3	11,432	469.9	Lbs.	3,810	4.1	Lbs.	4,430	3.3	Lbs.	3,150	4.2	Lbs.	5
Blissville.....	A	3	9,002	350.5		3,000	3.8		4,096	3.4		2,314	4.1		3
"	B	3	12,475	480.8		4,158	3.8		5,129	3.6		3,146	4.2		6
Carsonville.....	A	1	33,202	1,289.9		4,743	3.8		5,595	3.7		3,402	3.8		8
"	B	1	22,597	1,022.5		3,228	4.4		3,510	5.2		2,297	4.3		7
Havelock.....	A	5	32,518	1,227.6		6,503	3.7		8,240	3.4		5,476	3.9		6
Killam's Mills.....	A	7	20,560	775.6		2,937	3.7		3,420	4.1		5,340	3.7		7
Lower Ridge.....	A	2	7,610	306.9		3,805	4.0		4,181	4.1		3,429	3.8		7
Penobscuis.....	A	7	32,130	1,353.7		4,580	4.2		5,430	3.6		4,050	4.6		9
"	B	3	9,625	453.1		3,208	4.7		3,450	4.9		2,780	4.7		6
"	C	3	14,980	640.0		4,960	4.2		6,751	4.0		3,772	4.4		2
"	D	3	9,800	502.7		4,900	5.1		5,055	5.6		4,745	4.5		2
"	E	2	30,259	1,474.6		3,782	4.9		4,922	4.6		2,692	4.9		9
Petitcodiac.....	A	4	15,339	595.6		3,834	3.8		5,155	4.0		2,068	3.9		3
"	B	9	46,782	1,598.3		5,198	3.3		6,720	3.4		3,350	3.0		2
"	C	8	39,948	1,391.9		4,993	3.4		6,563	3.4		3,898	3.4		2
"	D	3	10,395	477.7		3,464	4.6		3,918	4.7		3,085	3.9		2
"	E	5	23,784	922.6		4,756	3.8		6,220	4.1		4,094	4.0		2
"	F	7	39,255	1,422.9		5,607	3.6		6,833	3.5		4,692	3.5		5
"	G	7	25,223	1,035.1		3,746	4.2		4,492	3.4		2,279	4.8		9
"	H	5	19,909	705.6		3,981	3.5		4,744	3.4		5,315	3.7		5
Salisbury.....	A	5	21,900	771.2		4,380	3.4		5,470	2.7		3,975	4.0		4
Sussex.....	A	9	34,001	1,473.2		4,222	3.8		5,163	3.5		3,069	3.8		6
"	B	7	37,520	1,359.6		5,360	3.6		6,030	3.5		3,590	3.8		7
"	C	1	5,180	213.0		5,180	3.8		6,180	3.8		.....	.....		.....
Welsford.....	A	3	14,990	667.5		4,990	4.4		5,305	4.0		.....	.....		.....
"	B	3	13,354	552.9		4,451	4.1		5,665	3.4		4,730	4.5		4
"	C	1	5,350	201.9		5,350	3.9		5,350	3.7		2,884	5.4		3

The average yield of fat per cow is only 110.8 lbs. in the herd at Killam's Mills, herd F, Petitecodiac, is almost double this, and the herd at Havelock is more than double. Eleven cows in the column headed yield of poorest cow give more milk than the best cow at Killam's Mills. The herd at Havelock has the best showing all through for those in the Province of New Brunswick.

In the column for the yield of the best cow are many good yields of over 6,000 pounds of milk, showing what can be done.



SESSIONAL PAPER No. 15a

TABLE XIV.—Comparisons between Herds in the Province of New Brunswick for Twelve Months' Production, 1909.

NAME OF ASSOCIATION.	Herd.	No. of Cows.	TOTAL YIELD OF HERD.			AVERAGE YIELD PER COW.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
			Milk.	Fat.	Lbs.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.
Berwick.....	A	4	21,210	909.6	5,302	4.2	227.4	3.8	6,600	3.8	256.1	3,970	4.4	177.3
Penobsquis.....	A	1	6,000	233.1	6,000	3.8	233.1	3.8	6,000	3.8	233.1	.....	.....	.....
".....	B	13	54,161	2,686.6	4,166	4.9	206.6	4.4	5,224	4.4	221.1	3,425	5.3	182.9
".....	C	9	40,669	2,109.9	4,518	5.2	234.4	5.2	5,291	5.2	277.4	3,322	4.9	165.3
Petitcodiac.....	D	10	43,355	2,402.1	4,335	5.5	240.2	5.2	5,900	5.2	310.5	2,726	7.1	193.8
".....	A	6	27,843	1,049.1	4,640	3.7	174.8	3.8	6,753	3.8	259.0	2,885	4.3	125.4
".....	B	2	11,560	385.0	5,780	3.3	192.5	3.2	6,760	3.2	223.0	4,800	3.3	162.0
".....	C	1	4,780	168.5	4,780	3.3	168.5	3.3	4,780	3.3	168.5	.....	.....	.....
Sussex.....	A	1	5,570	254.2	5,570	4.5	254.2	4.5	5,570	4.5	254.2	.....	.....	.....
".....	B	2	11,880	526.2	5,940	4.4	263.1	4.4	6,140	4.8	299.6	5,740	3.9	226.6

Individual Herd in the Province of New Brunswick for Twelve Months' Production, 1909.														
.....	A	4	29,397	.....	7,344	.....	.....	.....	8,626	.....	.....	6,143	.....	7

Individual Herd in the Province of New Brunswick for Full Period of Lactation, 1909.														
.....	A	2	11,183	... ..	5,591	.....	.....	.....	5,923	.....	.....	5,260	.....	3







SESSIONAL PAPER No. 15a

TABLE XVI.—Average Monthly Yields, 1909.

MONTH AND PROVINCE.	Total Number of Cows.	AVERAGE YIELD.		
		Milk.	Test.	Fat.
		Lbs.		Lbs.
January—				
Ontario .....	347	550	3·6	19·9
British Columbia .....	528	539	4·2	22·8
Quebec .....	292	461	4·3	20·0
New Brunswick .....	112	458	4·6	21·4
Prince Edward Island .....	79	403	4·0	16·1
General average yield ..	1,358	511	4·1	20·9
" milk only ..	36	587		
February—				
Ontario .....	383	683	3·5	23·8
Quebec .....	192	558	4·1	23·0
British Columbia .....	547	555	4·2	23·3
New Brunswick .....	129	501	4·4	22·1
Prince Edward Island .....	65	371	3·9	14·6
General average yield ..	1,316	578	3·9	22·9
" milk only ..	61	564		
March—				
Ontario .....	487	718	3·5	25·7
Quebec .....	206	646	4·5	28·9
British Columbia .....	613	559	4·0	22·4
New Brunswick .....	137	546	4·3	23·7
Prince Edward Island .....	42	485	3·9	18·5
General average yield ..	1,485	619	3·9	24·3
" milk only ..	51	697		
April—				
Ontario .....	1,111	768	3·4	26·0
Quebec .....	588	613	3·8	23·8
British Columbia .....	656	600	3·9	23·5
New Brunswick .....	268	574	4·1	23·8
Prince Edward Island .....	47	584	3·4	20·3
General average yield ..	2,670	670	3·7	24·6
" milk only ..	223	737		
May—				
Ontario .....	2,272	812	3·4	27·4
Quebec .....	1,431	659	3·7	24·5
British Columbia .....	738	647	4·0	25·8
Nova Scotia .....	24	591	4·2	25·0
Prince Edward Island .....	71	608	3·8	22·8
New Brunswick .....	482	550	3·8	20·9
General average yield ..	5,018	716	3·6	25·7
" milk only ..	489	807		
June—				
Ontario .....	3,009	900	3·3	29·8
Prince Edward Island .....	201	828	3·7	30·0
Quebec .....	1,928	699	3·6	25·7
British Columbia .....	773	644	4·0	25·8
Nova Scotia .....	99	630	4·1	25·9
New Brunswick .....	634	633	3·9	24·7
General average yield ..	6,644	780	3·9	24·6
" milk only ..	582	896		



1 GEORGE V., A. 1911

TABLE XVI.—Average Monthly Yields, 1909—*Concluded*.

MONTH AND PROVINCE.	Total Number of Cows.	AVERAGE YIELD.		
		Milk.	Test.	Fat.
		Lbs.		Lbs.
<b>July—</b>				
Ontario .....	3,122	788	3.3	26.1
Prince Edward Island .....	466	763	3.6	27.6
Quebec .....	2,158	622	3.8	23.3
British Columbia .....	642	590	4.0	24.1
Nova Scotia .....	156	553	4.2	23.4
New Brunswick .....	594	586	3.8	22.3
General average yield .....	7,138	696	3.6	24.8
" milk only .....	665	784		
<b>August—</b>				
Ontario .....	3,037	704	3.5	24.7
Prince Edward Island .....	576	616	3.7	22.7
British Columbia .....	566	538	4.2	22.8
Nova Scotia .....	138	500	4.3	21.9
Quebec .....	1,967	502	3.9	19.8
New Brunswick .....	512	489	4.0	19.7
General average yield .....	6,796	604	3.7	22.5
" milk only .....	724	707		
<b>September—</b>				
Prince Edward Island .....	542	669	3.4	23.0
British Columbia .....	514	539	4.3	23.0
Ontario .....	2,757	609	3.7	22.1
New Brunswick .....	414	443	4.2	18.7
Quebec .....	1,643	452	4.1	18.6
Nova Scotia .....	129	437	4.1	18.0
General average yield .....	6,029	550	3.8	21.0
" milk only .....	538	620		
<b>October—</b>				
Prince Edward Island .....	416	554	3.8	21.1
British Columbia .....	498	516	4.3	22.6
Ontario .....	2,445	523	3.8	19.8
New Brunswick .....	338	416	4.3	18.0
Nova Scotia .....	75	457	4.0	18.0
Quebec .....	1,374	406	4.2	17.1
General average yield .....	5,151	486	3.9	19.4
" milk only .....	629	568		
<b>November—</b>				
British Columbia .....	478	500	4.4	21.9
Nova Scotia .....	73	433	4.3	19.0
Prince Edward Island .....	311	477	3.9	18.6
Ontario .....	1,489	456	3.9	17.7
New Brunswick .....	139	366	4.8	17.7
Quebec .....	676	390	4.2	16.3
General average yield .....	3,166	446	4.1	18.1
" milk only .....	541	498		
<b>December—</b>				
Prince Edward Island .....	92	634	3.8	23.9
British Columbia .....	457	531	4.3	23.2
New Brunswick .....	119	430	1.6	19.8
Nova Scotia .....	74	447	4.4	19.8
Quebec .....	460	451	4.3	19.0
Ontario .....	963	459	3.8	17.8
General average yield .....	2,105	479	4.1	19.7
" milk only .....	528	461		



## SESSIONAL PAPER No. 15a

These average yields for each month correspond very closely with the averages of 1907 and 1908.

The averages given in the above table for milk only include results sent in by several individual farmers who were not taking samples for testing, but simply recording the weights of milk.

## PERCENTAGE OF FAT.

In 1909, the number of cows tested each month in the Dominion varied from 1,316 in February, to 7,138 in July, with a total of 48,876 tests made during the year. The totals of the monthly yields were 30,223,347 pounds of milk and 1,127,898 pounds of fat, thus showing an average of 3.73 per cent of fat.

TABLE XVII.—Average Percentage of Fat, 1909, by Provinces.

Province.	Total Number of Tests.	Total Milk.	Total Fat.	Average Test.
		Lbs.	Lbs.	% fat.
Ontario .....	21,357	14,861,840	518,555	3.49
Quebec .....	12,879	7,112,668	277,308	3.89
British Columbia .....	6,993	3,989,115	165,302	4.14
New Brunswick .....	3,853	2,021,868	82,107	4.06
Prince Edward Island .....	2,886	1,762,438	64,739	3.67
Nova Scotia .....	768	387,175	16,378	4.23



TABLE XVIII—Average Percentage of Fat, 1909, by Months and Provinces.

MONTH.	ONTARIO.		QUEBEC.		NEW BRUNSWICK.		PRINCE EDWARD ISLAND.		NOVA SCOTIA.		BRITISH COLUMBIA.		TOTAL.	
	Number of Cows.	Aver- age 'Test.	Number of Cows.	Aver- age 'Test.	Number of Cows.	Aver- age 'Test.	Number of Cows.	Aver- age 'Test.	Number of Cows.	Aver- age 'Test.	Number of Cows.	Aver- age 'Test.	Number of Cows.	Aver- age 'Test.
January .....	347	3.6	292	4.3	112	4.6	79	4.0	.....	.....	528	4.2	1,358	4.1
February.....	382	3.5	192	4.1	129	4.4	65	3.9	.....	.....	547	4.2	1,316	3.9
March .....	487	3.5	202	4.5	137	4.3	42	3.9	.....	.....	606	4.0	1,485	3.9
April .....	1,106	3.4	581	3.8	268	4.1	47	3.4	.....	.....	650	3.9	2,670	3.7
May.....	2,272	3.4	1,430	3.7	465	3.8	71	3.8	24	4.2	728	4.0	5,018	3.6
June .....	3,009	3.3	1,928	3.6	626	3.9	201	3.7	99	4.1	763	4.0	6,644	3.5
July .....	3,122	3.3	2,158	3.8	594	3.8	457	3.6	156	4.2	642	4.0	7,138	3.6
August.....	3,037	3.5	1,955	3.9	512	4.0	563	3.7	138	4.3	566	4.2	6,796	3.7
September.....	2,757	3.7	1,631	4.1	414	4.2	542	3.4	129	4.1	530	4.3	6,029	3.8
October.....	2,445	3.8	1,374	4.2	338	4.3	416	3.8	75	4.0	498	4.3	5,151	3.9
November .....	1,489	3.9	676	4.2	139	4.8	311	3.9	73	4.3	478	4.4	3,166	4.1
December .....	909	3.8	460	4.3	119	4.6	92	3.8	74	4.4	457	4.3	2,105	4.1



SESSIONAL PAPER No. 15a

TABLE XIX—Comparative Yield of Cows for Full Period of Lactation 1909, by Provinces.

Province.	Number of Cows.	Average Yield of Milk.	Average per cent Fat.	Average Yield of Fat.
		Lbs.		Lbs.
Ontario.....	1,080	5,481	3.4	191.6
" milk only.....	238	5,959	.....	.....
Quebec.....	745	4,707	3.9	134.8
" milk only.....	44	5,189	.....	.....
British Columbia.....	144	4,979	4.0	200.1
New Brunswick.....	137	4,409	3.9	173.2
" milk only.....	4	7,349	.....	.....
Nova Scotia.....	23	4,222	4.2	178.4
Prince Edward Island.....	72	4,643	3.7	174.1
Manitoba.....	5	5,012	4.0	202.0
Total cows and average yield.....	2,206	5,034	3.7	188.5
" " " milk only.....	286	5,857	.....	.....

TABLE XX—Comparative Yield, by Provinces, of Cows tested for Twelve Months Production 1909, and still giving Milk.

Province.	Number of Cows.	Average Yield of Milk.	Average per cent Fat.	Average Yield of Fat.
		Lbs.		Lbs.
Ontario.....	86	7,531	3.5	266.9
" milk only.....	22	6,600	.....	.....
Quebec, milk only.....	3	8,245	.....	.....
British Columbia.....	213	5,636	4.3	245.2
New Brunswick.....	49	4,633	4.7	218.8
" milk only.....	2	5,591	.....	.....
Prince Edward Island.....	4	6,733	3.7	253.1
Total cows and average yield.....	352	5,972	4.0	244.1
" " " milk only.....	27	6,793	.....	.....

## SOME DEFINITE GAINS FROM COW TESTING.

Attention is particularly directed to the following records and statements by the owners of the herds, especially the first four. The remarkable increases in the yields of milk and the cash income per cow should stimulate every dairyman in Canada.

Mr. S. A. Freeman, of Culloden, Ont., handling a large herd, has the following record:—

In 1906, seventy cows gave an average yield of 5,149 pounds of milk		
" 1907, seventy "	"	5,871
" 1908, sixty-five "	"	6,211
" 1909, seventy "	"	6,708



1 GEORGE V., A. 1911

The yield in 1909 is all the more noticeable as it includes the production of seven 2-year olds; twenty of the best cows averaged 8,724 pounds of milk.

Thus in four years, there is *an increase of 1,659 pounds of milk, or 32 per cent.*

Mr. Freeman writes: 'The last three years I have culled out from eight to ten cows each year; they have mostly been sold for beef. Some nice black and white ones have been bought by dealers and sold in auction sales for dairy cows. One in particular was below my average; I sold her for \$45; she brought at the sale \$75. I have sold ten this year; they were mostly 5,000 pound cows, five and six years old—not much prospect of them doing better. They all went for beef without any extra feed. I have seven 2-year old heifers to take their place, have bought five more, lost one cow, have twelve yearlings to replace next year's culls. I can't hope to get any better herd than I have at present, unless I raise calves from my best cows. I can't afford to pay \$100 and upwards for cows that are only grades to put in a large herd and run chances of them keeping up to their former yield. I think there is more risk in cows that give very large yields if they are fed to produce the milk. *I hope to reach a standard of 8,000 pounds per cow for seventy cows.* If we have a good year we will give it a close rub. It is a hard job to keep up and increase the standard in a large herd; one cow that headed the herd three years ago lost a quarter last spring, the one that was best two years ago died this spring, another one of my very best lost two hind teats last spring, she gave 18 pounds at a mess from her two teats, am keeping her on this year. I will continue weighing the milk this summer.'

It is evident that it must take very careful management to handle such a large herd so successfully, and it will be noticed that Mr. Freeman is still not satisfied with present attainments, but is aiming still higher; 8,000 pounds of milk from 70 cows as an average yield might well encourage other milk producers.

Another very noteworthy instance shows a good average almost doubled inside 7 years. Mr. W. E. Thomson, of Woodstock, Ont., states that *he has increased the yield of milk from about 5,500 pounds of milk per cow in 1902 to 10,500 pounds in 1909* through using a pure bred sire and selecting the best milkers. He states that the cow testing association records have been a great help to him.

Mr. Thomson writes: 'It has always been my practice to raise my own heifers from my best cows, and then to feed and care for them in such a way as to enable them to do the most at the pail. I have only bought four or five since I started into business and they were pure bred cows. The first year I kept records I sold six to a butcher; these were cows I had bought at farm sales to start with. All cows sold after that were sold as milkers. A cow that will not give seven or eight thousand pounds of milk for me in ten months must go. I hope to have all mature cows give an average of one thousand pounds of milk per month.'

Again near Woodstock, Ont., is to be found a most encouraging average and a splendid increase. The herd of 20 cows belonging to Mr. A. J. Davis has been built up from grade Shorthorns of decidedly beef tendency, and *the yield has been doubled in 6 years* (the average in 1903 was 4,500 pounds of milk per cow, and in 1909 it was 9,144 pounds per cow), by the use of a pure bred dairy sire, selecting the best heifers from year to year, and culling out the poorest cows.

Cows are fed liberally, but cheaply, considering the amount of milk they give.

Mr. Davis believes in keeping heifers milking at least 12 months the first season, as he is more likely to get persistent milkers than if they were dried up at the end of 7 or 8 months. The first cross of heifers gave 6,500 pounds (Holstein sire, Shorthorn cows), just 2,000 pounds more than the mothers, which were matured cows.

Two most important points are that the present excellent dairy herd has been built up from a beef breed, grade Shorthorn cows, and *the yield has been doubled in 6 years.* The variation runs from 7,070 pounds to 12,690 pounds of milk per cow. Mr. Davis hopes within the next year or two to bring them up by at least 1,000 pounds per cow,



## SESSIONAL PAPER No. 15a

and to that end the four poorest cows were sold in January. He has the foundation stock in cows above the average to do even better than this.

Mr. R. J. Smart, Scotsburn, N.S., gives the following statement regarding his herd:—

## 1905.

Six cows, from June 17 to September 30, gave 276 pounds of fat worth.. . . .	\$58 19
Six cows, from October 1 to December 31, gave 78 pounds of fat worth.. . . .	17 92
Total.. . . .	354
	\$76 11

## 1908.

Four cows from May 11, to Sept. 30.. . . .	405 pounds of fat \$ 96 02
Four cows from Oct. 1, to Dec. 31.. . . .	125 " 35 29
Total.. . . .	640
	\$131 31

## 1909.

Six cows from May 12 to, Sept. 30.. . . .	620 pounds of fat \$145 31
Six cows from Oct. 1, to Dec. 18.. . . .	245 " 66 34
Total.. . . .	865
	\$211 73

Previous to this past year he did not test regularly, but tested a month or two at a time, occasionally, for a number of years, and thereby got some idea of his cows, and started selling off the poorest ones, but found difficulty in buying good ones, and is only getting them by breeding from his best cows. A pure bred Guernsey sire is now being used for the fourth year.

Previous to 1905, no winter dairying was carried on. This winter the average is between twenty and twenty-five pounds of butter per week.

In addition to the receipts given above enough milk and cream were kept at home for family use all the year, which would mean the yield of at least one cow. The past year two of the herd were 2-year old heifers.

Vetches and oats are grown for early fall feeding, and cured for winter feeding. Winter feed consists of clover hay, a few roots and buckwheat-chop, with a few hundred of cottonseed and beans.

Mr. Smart considers a very important point in summer is to change pasture frequently and not put the cows out in the spring until the grass has a good start; also to leave the cows out at night during the hot weather. A great many keep their cows in at night all summer.

It will be observed that the cash income per cow in this herd is practically *three times as much* as it was four years ago.

Mr. W. J. Curtis, Willetsholme, Ont., in 1907, obtained an average yield of 4,334 pounds of milk and 141 pounds of fat from sixteen cows. His thirteen cows in 1909 averaged 6,267 pounds of milk and 198 pounds of fat; this is an increase of 1,933 pounds of milk and 57 pounds of fat per cow, or *over 40 per cent*.

Mr. Curtis writes:—‘I bought four pure bred Holstein cows, and generally sell for beef two or three cows a year. I aim at getting as much milk as possible from feed I raise on the farm.’

Mr. J. K. Moore, Peterborough, Ont., of the Central Smith Association, is steadily increasing the average per cow.



1 GEORGE V., A. 1911

In 1907, 20 cows gave	6,709 pounds of milk and	213 pounds of fat.
" 1908, 22	" 8,050	" 266
" 1909, 21	" 8,978	" 298

The increase is thus seen to be 2,269 pounds of milk per cow, or 33 per cent.

Mr. Moore gives the following interesting details of his methods:—

'I might say, first of all, in regard to our herd of 21 cows that were tested this past season that the returns to the first of January with what they gave in January bring their average up to over 9,000 pounds of milk and 300 pounds of butter fat. Also for the month of June, from 23 in first half and 24 in latter half, we put into the factory over 30,000 pounds of milk or 1,000 pounds a day; and for the whole season just closed our 28 cows, of which 11 were heifers with first and second calves, and bearing in mind that we just received ordinary cheese and butter factory prices, these 28 brought us in \$1,800. We sold over \$100 worth of calves last spring and kept calves valued at over \$100, and we did not value our skim milk, but have had a large amount of it to feed our hogs all winter.

'So summing up, we have \$1,800 from the factory, \$200 for calves and \$200 for cows, and two large calves just sold, and whatever value the skim milk had; which is not bad for a graded herd of Holsteins.

'We have used pure bred sires ever since we started into Holsteins thirteen years ago. We are great believers in ensilage, roots and alfalfa. Our great regret is that we did not start raising alfalfa years ago. We always put in three to four acres each year of a mixture of wheat, peas and oats for summer feeding from the silo. We also feed grain most of the year except during the month of June. The grain ration is principally a mixture of wheat and oats and barley which we grow. We also feed oil cake when our cows are freshening in the spring. But our chief aim is to supply our cows with plenty of succulent food which can be grown on the farm at first cost. We find the great secret of success with dairy cows is to fill them to almost bursting with succulent food and contentment, and milk will follow. We only feed twice a day during the whole time that they are stabled, feeding about 6 a.m., and 5 p.m. They never look for anything between times and we consider this another help in getting milk. Water is in front of them at all times. We aim to clean them thoroughly twice a week or more all winter, and consider it time well spent both in the looks of the cows and in the saving of feed occasioned by it.

'I might say, in reference to what our herd brought in the past season, that four of the heifers did not come in till the latter part of July and August and will be milking until next summer, so that our herd returns should be greater than what is shown.

'In regard to profit from our best cow. She (No. 12) is milking yet and will give 12,000 pounds of milk and 400 pounds of butter fat before she is dry. Her food has cost about \$45; so you can estimate profit from that. I think to feed our whole herd would average about \$40 all round, and as the ones we tested have averaged 9,000 pounds of milk, I think they all have a good profit to their credit.

'Our yield has been entirely increased by keeping our best cows and raising the heifers from them. We have only purchased one pure bred cow, although we have used pure bred sires for about 14 years. I might say that the way we cull out is this: we take our poorest cows as shown by the scales and test, and the next year raise three or four cows on them, fattening these cows off on the rape and selling to the butcher before they are stabled. In this way, we have disposed of three or four each year, and without selling them to our neighbours. *Our aim is 10,000 pounds of milk and 350 pounds of butter fat with all that we can get beyond that.*

A very satisfactory increase has been made in the herd of Mr. Wm. Paul, of Peterborough, Ont.

In 1907, 14 cows gave an average yield of 4,359 pounds of milk and 143.3 pounds of fat. In 1908, 12 cows gave 5,218 pounds of milk and 181 pounds of fat, and in 1909



## SESSIONAL PAPER No. 15a

the average yield of 13 cows was 5,845 pounds of milk and 206.8 pounds of fat, thus showing an increase of 1,486 pounds of milk per cow, or 34 per cent; and an increase of 63.5 pounds of fat per cow, or 44 per cent.

Mr. Paul writes:—

‘A man is working blindfolded who does not test his individual cows.

‘My average yield was increased by keeping the best cows and raising calves from them. I kept a good sire, pure bred Ayrshire.

‘After starting to test my cows, I disposed of eight poor cows as beef for the first year, six the next and seven the last. I did not fix any limit of weight, but I knew they were my worst cows. If I had not started the cow testing I would likely have had the most of them yet.

‘I feed ensilage and roots, and am now growing alfalfa.

‘My standard I hope to arrive at is the highest possible.’

Mr. Christopher Howson, Keene, Ont., writes that the increase in the average yield of his cows is due to selling the worst milkers to the butcher. They were fed about the same in 1909 as in 1908. The increase is from 3,564 pounds of milk to 4,924 pounds per cow, or 38 per cent more.

The herd belonging to Mr. T. E. Jory, Lakefield, Ont., shows an average of 4,961 pounds of milk and 182.2 pounds of fat from 9 cows in 1907; 6,216 pounds of milk and 221 pounds of fat from 8 cows in 1908; and 6,511 pounds of milk and 238.9 pounds of fat from 8 cows in 1909, or an increase of 30 per cent.

Mr. Jory writes:

‘I may say that I have increased the average by keeping the best cows and raising the calves from them. I have not purchased any cows, but I would if I could get good ones. They are hard to get, for every farmer wants to keep his best ones. With regard to disposing of my poorest cows, I disposed of one each year. I sold them for beef. By weeding out the poor ones, I hope to increase them to 8,000 pounds of butter if I can, but I cannot expect to do much better at present until I get my silo built and grow alfalfa for them.

‘I grow peas and oats mixed; I sow one piece as early as I can in the spring and at intervals of a week or 10 days, so that I can have green feed for them until the corn is ready to use. I try to have green fodder for them continually till winter. In winter I feed fodder corn and roots.

‘I feed a mixture of oats, buckwheat and pea chop. I think regular milking, kind treatment and having something appetizing in the manger for them when they come in to the stable to be milked, and keeping dogs away from them, have a great deal to do towards filling the milk pail.’

Mr. David Taylor, Warsaw, Ont., shows an increase of 25 per cent in the yield of his herd.

In 1907, 22 cows averaged 5,331 pounds of milk and 172.3 pounds of fat.

In 1908, 25 cows averaged 5,673 pounds of milk and 164.1 pounds of fat.

In 1909, 22 cows averaged 6,680 pounds of milk and 212.3 pounds of fat.

The herd belonging to Mr. E. Hawthorn, Warsaw, Ont., shows an increase of 17 per cent in the yield of fat.

In 1907, 17 cows averaged 5,581 pounds of milk and 186.1 pounds of fat

1908, 15	“	5,005	“	169.2	“
----------	---	-------	---	-------	---

1909, 14	“	6,361	“	218.6	“
----------	---	-------	---	-------	---

In the herd of Mr. Arthur Edwards, Warsaw, Ont., an increase of 14 per cent in the yield of milk has been obtained since 1907. The yields for the three years are:—

1907, 16 cows averaged 4,813 pounds of milk, 173 pounds of fat.

1908, 14	“	4,972	“	178	“
----------	---	-------	---	-----	---

1909, 15	“	5,494	“	185	“
----------	---	-------	---	-----	---



1 GEORGE V., A. 1911

Mr. Edwards writes: 'We disposed of 2 cows for beef in 1907, 3 in 1908, and 2 in 1909. We always part with the poorest cows in the herd and the oldest.. We think each cow should reach 5,000 pounds of milk, and would like to see them go to 9,000.'

Mr. W. E. Wood, of Jermyn, Ont., has been able to obtain a substantial increase in the yield of his herd.

In 1907, 13 cows averaged	4,875 pounds of milk	and 173.2 pounds of fat.
" 1908, 14 "	5,364 "	187.7 "
" 1909, 10 "	6,830 "	225.8 "

This indicates an increase of 40 per cent in the yield of milk. Mr. Wood writes:—

'I have used a pure bred Holstein sire for four years.

'As to feeding, I feed roots and corn in the fall, no ensilage; I feed roots until they get on grass again, about a peck of pulped roots each day per cow. When my cows come in, from that to about the middle of May, I feed each cow about a gallon of chop mixed. I mix cut straw and roots and chop together and feed hay also in spring.

'My cows have water in front of them in the stable all the time.

'Our average yield was increased by keeping the best cows, as I have been weeding out the poor cows each year since I started testing. I have not bought any cows since I started. I sold out the poor ones for beef, four last year, but I can't say how many each year previous to that, as I don't remember. I would like to be able to get my cows to give 9,000 pounds of milk each.

The herd belonging to Mr. Francis Sheldon, Oak Leaf, Ont., shows an increase of 22 per cent in the yield of milk; 13 cows in 1907 having averaged 4,512 pounds; 9 cows in 1908, 4,992 pounds; and 10 cows in 1909 having given 5,526 pounds, an increase of 1,014 pounds per cow.

Mr. Sheldon writes:—

'In commencing to weigh my milk, I found at once the good cows from the poor ones. I commenced to weed out the poor ones. I never had a silo until last year, but I found it was a good thing.

'I also fed a little more grain, but could not tell the weight. The mixture was oats, corn, buckwheat. I have not kept account of feed, as I raised it all myself.'

Mr. Walter Paterson, of Ingersoll, Ont., writes:—

'I would like to say to all dairymen who do not keep daily dairy records of each individual cow that now is the time to start. It does not take very much time and proves not only to be beneficial, but very interesting, and where hired help has to be depended on largely for milking it seems to stimulate an interest in the work; the cows will be milked cleaner to keep up the average, and one feeder after looking over the milk sheet occasionally can feed the whole herd, each cow being fed in proportion to her yield, say one pound of meal for every six pounds of milk, or more if you wish.

'I always aim to have some peas and oats sown early, or some alfalfa for soiling crop, until the second crop of red clover is ready for pasturing, which does until the corn and mangolds are ready.

'I think turnips make the best winter roots to be fed when the cows are dry.

'I have had no experience with ensilage, but think it is one of the best and probably cheapest feeds for dairy cows at all times of the year.

'I always keep a pure bred sire with my grade Holstein cows. The average yield of my fourteen cows in 1906 was 5,070 pounds, the highest yield for one cow being 6,960 pounds. I have since then been weeding out and last fall discarded all mature cows that would not yield over 6,000 pounds. The highest yield for any one cow in 1909, was 11,254 pounds.'



## SESSIONAL PAPER No. 15a

Mr. J. E. Sandick, Ingersoll, Ont., writes:—

‘I will give you our cheese factory returns since 1904. We have kept from 14 to 16 cows and we kept no account of the milk for the house, besides raising from 3 to 6 calves a year, and we fed them well.

In 1904, 14 cows averaged 5,260 pounds of milk, making \$39.62 apiece (cheese cheap this year).

In 1905, 15 cows averaged 5,500 pounds of milk, making \$56.37.

In 1906, 14 cows averaged 5,097 pounds of milk, making \$54.02 (milking six 2-year old heifers).

In 1907, 15 cows averaged 5,803 pounds of milk, making \$58.22.

In 1908, 16 cows averaged 6,432 pounds of milk, making \$60.06.

In 1909, 16 cows averaged 6,684 pounds of milk, making \$66.47.

‘I might say that this year (1909) we had several cows aborted and three farrow; so that they did not do their best.

In regard to feeding, previous to 1907 we cured corn in the field and stored it in the barn, then we built a concrete silo 14 x 35, and since we started feeding ensilage, we feed but twice a day; first we milk and then feed 15 pounds of silage. The chop consists of equal parts oats, barley and bran or shorts, giving each cow according to production, from 2 to 4 pounds and from  $\frac{1}{2}$  to 1 pound oil cake and 7 or 8 pounds alfalfa hay. Our mangers are fitted with racks so that the hay does not interfere with chop and ensilage. We have the Woodward system of waterworks in, but we want our cows out at least twice a week for an hour if it is not too rough. Then they are given the same at night, and I find they do better than when fed oftener. We have mostly all alfalfa hay this winter, and it certainly is all right. For summer we feed silage and a little chop, according to shortness of pasture, and have green corn and white turnips for late feeding.

‘I find that August, September and October are the hardest months to get milk. I am aiming at having half of my cows drying off about that time. We have been gradually working into Holsteins; we keep a pure bred sire, and if we have a cow to put off we have her fat by the time she is dry.’

The herd of Mr. F. W. Goble, Woodstock, Ont., shows a steady increase.

In 1907, 13 cows had an average yield of 5,259 pounds of milk and 192 pounds of fat.

In 1908, 12 cows had an average yield of 6,715 pounds of milk and 246 pounds of fat.

In 1909, 12 cows averaged 7,201 pounds of milk, 253 pounds of fat.

Mr. Goble writes regarding his herd:—

‘In the first place, I might say that when our cow testing association started, my herd was in rather bad shape. Before that time we had a fairly good herd of producers, mostly Durham grades; but in breeding them to Durham bulls the offspring in nearly all cases after one or two lactation periods were turned off for beef, as they were unprofitable milkers. Meanwhile the original cows were getting beyond their best, and I bought two Holstein grades and four heifers to replace these older ones. The season of 1907 was over before I bought this new blood. Last season eight of my herd were Holstein grades, of which five were two-year-olds.

‘I always use a good pure bred sire for anything that I wish to raise.’

‘Last season I fed silage from January to December, and as that was the first whole year that I had fed it, I attribute considerable of my increased yield to that fact. I fed roots from January to April 15. I have had no alfalfa as yet, and grow no summer soiling crops. I would rather depend upon silage for summer feed, as it requires less labour. I fed clover hay, however, throughout the stabling season.

‘I do not feed a heavy grain ration; about two pounds of oil cake, one pound of wheat bran and one pound of oat and barley chop for winter feed before they freshen. This is only an average, as few are fed alike. After cows freshen I feed



1 GEORGE V., A. 1911

about three pounds of oil cake, two pounds of wheat bran and four pounds of oat and barley chop.

'It is hard to strike an average price for my milk, as part is sold as cream, part is sent to cheese factory and part is sold as milk for delivery in city. This last summer, on the same day I have received 85 cents or 90 cents per hundred pounds and \$1.60. As I did not keep account of milk separated, I have no way of telling just what it averaged me per hundred pounds.

'I might say that I did not increase my average yield by raising calves from my best cows, at least only in one or two cases. My cows were mostly Durham grades, and as I wished to change to Holsteins, I bought two high grade cows and four heifers and raised their calves. The first of these calves is freshening for the first time this spring.

'During 1908, I disposed of one poor cow and six good old cows. During 1909 I disposed of three poor cows and one good old cow. All that were sold were disposed of as fat cattle or canners.

'At first each mature cow that did not produce 5,000 pounds of milk or better had to go. At present they must produce over 6,000 pounds of milk to stay, and then must be high in butter fat.

'My ideal at present is 10,000 pounds of milk per cow.'

Mr. J. C. Fullick, Woodstock, Ont., a member of the Spring Creek association, writes:—

'I bought the most of my herd three years ago and raised the calves they were carrying when I got them, so cannot say exactly what their sire was; I now have a pure bred Holstein bull.

'I built a silo last summer, so have not had any ensilage to feed till this winter.

'I have always fed roots, about 25 pounds a day, when the cows are milking. I have never had any alfalfa, and have never provided a summer soiling crop. While my cows are in the stable from the time they come in till they are turned out to grass I feed from ten to twelve pounds of grain, oats, barley and wheat bran with a little oil cake.

'I cannot give you the profits over and above feed, as I have not kept account long enough and do not care to make any statement that I am not sure of.

'I attribute my success with my herd to feeding regularly and also milking regularly; kind treatment and making them as comfortable as possible; weighing and testing each cow's milk and weeding out the poor ones.

'I shall give more attention to providing more feed, clover hay, ensilage and roots, trying to retain ensilage for summer feeding.

'I sold one cow for beef at the close of 1907, and purchased one in her place, which made fourteen in 1909.

In 1907, 11 cows averaged 5,657 pounds of milk.

" 1908, 11 " 6,780 "

" 1909, 14 " 6,704 "

'These fourteen did not do quite as well as the eleven in 1908, as they included three heifers; still they gave over 1,000 pounds more per cow than the average in 1907.

'I think the increase in milk is due to having them come in early. I think a cow that comes in, say, in January, will give more milk in a season than if she did not come in till April.

'I think no man should sell for a milch cow one that would not give 5,000 pounds. They should go to the butcher, and I think we should not be satisfied till we make every herd reach 8,000 pounds of milk.

'In 1909, my herd average was 6,704 pounds of milk.

'The best cow in the herd gave 8,260 pounds of milk.

'If we take out one or two of the poorest each year, we can easily reach a reasonably high standard for a herd.



## SESSIONAL PAPER No. 15a

Mr. R. A. Harvey, of Mansonville, Que., has achieved an increase of 668 pounds of milk per cow, or a gain of 28 per cent.

In 1906, the yield of 8 cows was 2,337 pounds of milk, 101 pounds of fat.

1907	"	11	"	2,472	"	104	"
1908	"	8	"	3,005	"	132	"

Mr. Harvey writes:—

‘One reason for improvement was in five of these cows being heifers that I raised from a pure bred sire, four of them from a Guernsey sire, and I am still continuing with the Guernseys. I have some very promising looking heifers 2 years old that will freshen in 1909. I believe the only way to get a good herd is to test the cows and then select the heifer calves from the best, then test the heifers and select from them. This has been my experience with raising a dairy herd, using nothing but the pure bred sires, getting one that can show good ancestors behind him in the dairy line.

‘I have no silo, but raise roots and fodder corn which I feed in the stalk. If I do not have corn when the feed gets dry in summer I feed some grain, bran or shorts mostly, till the corn is matured a little, and then begin to feed corn as long as it lasts, then begin with the roots and some grain with them, bran or shorts. I feed roots immediately after milking at night, and grain in the morning. I could not tell just how much grain I feed to a cow, but I do not feed more than 8 quarts of bran or shorts to a cow daily. When I have roots I feed about half that amount.

‘In the spring of 1908 I fed my cows one dollar’s worth of grain a day to the whole herd and they paid me back \$2.50 a day in butter made at home, besides the skim milk. The hay I did not weigh, so I could not give you the net profit of any of my cows, but I feel well pleased with what they are doing for me.

‘I think that farmers might have more pure bred sires by uniting and buying together. One of my neighbours and I bought a bull together, six or seven years ago, and we still own a bull together. We both have the use of him, each one keeping him part of the time. We do not feel the cost of purchase like one buying alone. We keep a bull three or four years and then change on account of not breeding heifers back to him.’

Mr. G. E. Ford, Cowansville, Que., writes:—

‘In 1906 our 8 cows averaged 3,248 pounds of milk and 141 pounds of butter fat, but in 1908 our 10 cows gave an average of 4,410 pounds of milk and 203 pounds of fat, that is to say, they have increased 35 per cent in the yield of milk.

‘I always try to get the best pure bred sire possible. My herd are all Jerseys.

‘I feed lots of roots, no alfalfa. I have tried it a few times, but failed. Shall try once more and hope for better results. Green peas and oats, also millet and clover. I have no silo, but raise lots of corn; cut corn in winter, pile on barn floor, let it stand a few days, then feed; when all fed out, cut again. Get good results, but believe silo is best and intend to have one soon.

‘We feed one pound of grain to every 3 or 4 pounds of milk; our mixture consists of 500 pounds of bran, 300 pounds of corn and barley meal, 200 pounds of ground oats, 100 pounds of cotton seed meal, and a little old process oil cake, all of which is thoroughly mixed together and fed as above stated.

‘At present we are getting \$1.40 for every \$1 spent for feed. We are trying to build up a herd that will average us 400 pounds of butter fat per year. Our herd is tuberculin tested each year. At present we have some nice young stock coming on.

‘We take the following dairy papers: ‘Farm and Dairy,’ ‘Hoard’s Dairyman,’ ‘Jersey Bulletin,’ and ‘Breeder’s Gazette,’ and are thinking of taking one or two more good ones, and both my wife and I read them closely through, and not just fold them up and lay away to get dusty. If more of our Canadian farmers would take a little time each day and read up about farming and then try and think a little for themselves, they would soon find it would pay them. Money invested each year in farm papers will pay 50 per cent on the investment if rightly followed out.



1 GEORGE V., A. 1911

'In the year 1905, I bought my first registered Jersey cow. The balance of my herd were native scrubs. In 1906 I bought a registered Jersey bull of A1 breeding, but in 1907, I lost nearly all my herd by tuberculosis, my bull amongst them; so you see I was cleared out—only a few grades and one or two registered cows left. After disposing of my diseased animals and disinfecting my barns, I bought a good registered Jersey bull and six registered cows; two of these cows proved non-breeders.

'From six registered, and twelve grade cows in 1908, I began to try and raise up a good profitable dairy. We keep each year the heifer calves from our best testing and registered cows. Of course we would not dispose of a grade calf if it were from a good cow, but our aim at present is to have all registered cattle, as it costs no more to keep them and they are more profitable when you want to sell for breeding purposes. Of course all this takes time, study in selection, close attention to business. We believe it is far better to raise your own cows than to always buy them. Of course we buy nothing but the best of sires. Our herd is tuberculin tested each year, and I believe it is the only herd in the Townships that is so treated. Most farmers are afraid to have it done; we are not, and our herd is all healthy.'

Mr. Asa Johnston, of Cowansville, Que., has achieved a solid increase.

In 1906, the average yield of 12 cows was 4,503 pounds of milk and 178.1 pounds of fat.

In 1907, the average yield of 16 cows was 5,249 pounds of milk and 224.3 pounds of fat.

In 1908, the average yield of 15 cows was 6,474 pounds of milk and 263.6 pounds of fat.

In 1909, the average yield of 18 cows was 6,459 pounds of milk and 264.2 pounds of fat.

This is an increase of 43 per cent in the yield of milk and 48 per cent in the yield of fat.

The herd of Mr. Hercule Edoin, Pike River, Que., shows a steady increase.

In 1906, the average of 9 cows was 3,674 pounds of milk and 127.6 pounds of fat.

In 1907, the average of 7 cows was 4,877 pounds of milk and 195.7 pounds of fat.

In 1908, the average of 5 cows was 4,609 pounds of milk and 154.7 pounds of fat.

In 1909, the average of 5 cows was 5,605 pounds of milk and 231.0 pounds of fat.

This is an increase of 52 per cent in the yield of milk and 81 per cent in the yield of butter fat.

Mr. Edoin writes:—

'The poor cows were sold for beef. In winter I feed hay and corn. Green feed is a good thing for summer feeding. I fed turnips from November 19 to January 10, from forty to fifty pounds per day. From January 10, I gave them four pounds of meal per day.'

Mr. Theophile Trudel, of St. Prosper, Que., has an average increase of 1,145 pounds of milk in two years, or 21 per cent.

In 1907, the average of 17 cows was 5,364 pounds of milk, 208.8 pounds of fat.

In 1908, the average of 17 cows was 5,480 pounds of milk, 217.2 pounds of fat.

In 1909, the average of 18 cows was 6,509 pounds of milk, 261.0 pounds of fat.

In 1909, the average cost of feed was \$36.66.

Mr. Trudel writes:—

'I believe that exposure to a cold rain even in summer means a lowering of the milk yield and an injury from which cows do not recover for four or five days. I have not purchased any cows during these three years, but have selected the best milkers, sending the poorest to the butcher's, the first year 3, the second year 3, and last year 2. Weighing the milk makes one watch the cows far more carefully so that they get better attention in every way.'



## SESSIONAL PAPER No. 15a

Mr. D. G. McKay, of Heathbell, N.S., writes:—

‘We have been testing our cows since 1905. In that year we had 8 cows. Our average for the whole herd was 225 pounds of butter.

‘In 1909, we also had 8 cows. Our average for that year was 300 pounds, but some of the cows went as high as 350 pounds, and some of them were young—one three years old and another two.

‘Our system of feeding is, in winter, to a cow giving about 25 pounds of milk per day, six pounds of meal, two each of barley, oats and bran, half a pound of cotton seed meal. We vary up and down from this according to the quantity of milk that the cow gives. Fifty pounds either turnips or mangels fed one half each end of the day, all the clover hay they will eat and occasionally a feed of oat straw. We water twice a day, have water in the barn and in the yard. On fine days the cows are turned out in the yard for a little while. In July, or as soon as the pastures begin to get short, we feed green clover, then oats, peas and tares, green, then green corn until the turnips are ready to feed.

‘We have used nothing but a pure bred Guernsey bull for a number of years.

‘You ask if our average yield was increased by keeping the best cows and raising calves from them, or if we purchased cows; we have tried both ways, but have found the former to be much more satisfactory.

‘As to how many cows we disposed of each year as poor cows, we could hardly say. We have disposed of quite a number, some of them were fairly good and were sold as milking stock, others were sold for beef, but when we do sell we always try to get rid of the poorest.

‘As to what standard a cow must come to, we have not set it. It depends a good deal on circumstances. And what standard do we hope to arrive at? I think that would be hard to set, but we hope to do a good deal better than we have yet done.’

Mr. John W. MacKay, of Scotsburn, N.S., writes:—

‘In 1908, we had seven cows, the average yield per cow being 15.5 pounds of butter fat per month during the summer of five months.

‘In 1909, we had five cows, the average yield per cow being 25.0 pounds of butter fat per month during the summer season.

‘While the pasture is good, we do not feed any grain or mill feed, but whenever the flow of milk begins to decrease, we feed green oats and peas (mixed). We also commence to feed bran and middlings, whenever we think it necessary, in order to keep the cows from going back, gradually increasing the feed until each cow is getting one gallon of bran and one gallon of middlings, with one and a half pints of cotton seed meal per day, fed as a mash twice a day, morning and evening, half this quantity each time. When the cows calve in fall or winter, we also feed an extra gallon of bran per day in two buckets of warm water, half this quantity at a time, keeping this up indefinitely or until the weather gets warm. Thus far we have been feeding all our cows the same quantity. We have no silo, but feed about half a bushel of turnips to each cow per day during winter. We always make use of a pure bred sire, and trust that we shall be able to improve our herd from year to year.’

## FEED RECORDS.

The following is a copy of the feed record form supplied by this branch of the department. By this it will be seen that the cost of feed per cow is in each case estimated by the owner.



1 GEORGE V., A. 1911

Department of Agriculture, Ottawa.

Office of the Dairy and Cold Storage Commissioner.

Herd No.....

.....Cow Testing Association.

Feed Record for 30 days ending.....191.....

Name ..... P.O. .... Province .....

Cow No.	PASTURE.	MEAL.		ENSILAGE.		ROOTS.		HAY.		OTHER FEED.		Total Value of Feed.
		Lbs. per Day.	Total lbs. Month.	Lbs. per Day.	Total lbs. Month.	Lbs. per Day.	Total lbs. Month.	Lbs. per Day.	Total lbs. Month.	Lbs. per Day.	Total lbs. Month.	
	Days.											\$ cts.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

What value do you place on:—Pasture per cow per month?.....Meal per ton?..... Roots per ton?..... Hay per ton?..... Other feed?..... Description of hay?..... Other feed?..... What mixture of meal is fed?.....  
Remarks: .....

NOTE.—This form is ruled to take records of twenty cows.

The first member to send in a detailed feed record of each cow was one at Kingsmill, Ontario, belonging to the Mapleton cow testing association. Within three months one cow was disposed of simply because the records of production and cost of feed showed her owner conclusively that she was not paying for her keep. Are there any more cows of that class in Ontario? Why should there be any at all?

Valuing milk at \$1 per 100 pounds, the account with each cow for the full twelve months of 1909 stands as follows:—

Cow No.	Yield of Milk.	Value of Milk.	Cost of Feed.	Profit.
	Lbs.	\$ cts.	\$ . cts.	\$ cts.
1	7,190	71 90	24 20	53 70
2	8,060	80 60	38 60	45 00
3	6,796	67 96	32 00	41 96
4	5,713	57 13	24 20	38 93
5	6,888	68 88	34 59	37 49
6	6,762	67 62	32 21	37 41
7	6,022	60 22	28 80	37 42
8	6,300	63 00	32 49	33 51
9	5,971	59 71	34 59	28 12



## SESSIONAL PAPER No. 15a

The highest cost of feeding was put at \$7.55 per cow in April, when those milking received seven pounds of meal per day (oats valued at \$30), 65 pounds of ensilage (\$2 per ton), 20 pounds of hay (clover and timothy \$8). Cows were on pasture (\$2 per month) from May to early November, during which time no grain was fed. No roots were fed at all.

In a herd at St. Hyacinthe, Quebec, a careful record is kept of milk and feed each month. The feed per cow is given as:—

2,440 pounds grain, at \$23.20 per ton.. . . .	\$28 36
4,350   "    hay       6.80   "    . . . . .	14 75
2,725   "    ensilage   2.30   "    . . . . .	3 15
900    "    roots       .15 per bushel.. . . .	2 25
5 months pasture at \$2.. . . .	10 00
<hr/>	
Total cost of feed.. . . .	\$58 51

Grain was fed every month except October, roots during November and December, and ensilage July to end of December.

The milk yield runs from 5,016 pounds to 9,865 pounds, with an average of 6,900 pounds from 15 cows. The value of the milk is computed at 20 cents per gallon for consumption right on the premises, but even valued at \$1 per hundred pounds a good return per cow is indicated, running as high as \$40.14 profit made by a cow giving 9,865 pounds of milk. Plenty more of such cows in Quebec are ready and anxious for the chance to show what they can do if liberally fed.

There is a marked variation in the prices given for meal. During three months bran was valued as low as \$19 per ton at Innerkip, Ont. Some mixtures, during those months, were peas, oats, barley and bran, \$22; bran and oat chop, \$25; bran and shorts, \$25. In July and August oats were valued as high as \$30, while the men feeding oil cake in April and May put the cost as high as \$35. In such localities, Innerkip for example, cows were giving 1,100 pounds of milk and 35 pounds of fat in a month at a cost of \$4.99 on a daily ration of 24 pounds ensilage, 12 pounds timothy, 5 pounds bran, 2½ pounds pea meal, 1½ pounds oil cake.

Some 5-year-old Holstein grades near Innerkip gave from 8,000 to 9,000 pounds of milk and 300 pounds of fat at a feed cost of \$38.

## COST OF MILK.

During May in one herd of 9 cows near Belmont, Ont., the cost of feed was put at \$6.02 per cow for meal, roots and hay. On this feed one cow gave 1,656 pounds of milk at a cost of 36 cents per hundred pounds, while a second in the same herd gave only 928 pounds of milk, thus costing 64 cents per hundred pounds. During the eight months that these records were kept, one cow produced 9,553 pounds of milk at a feed cost of \$28.23, while the other cow gave 6,712 pounds at a cost of \$28.70. From the full twelve months' totals it appears that one cow gave 11,255 pounds of milk at a cost of \$44.25, while the other gave 7,612 pounds at a cost of \$45.70; thus in the one case the milk was produced at a feed cost of 60 cents per hundred pounds, while in the other case it cost only 40 cents. This aspect of the business needs vastly more attention and study by every milk producer; it is of the utmost importance to him to supply an answer to the question concerning each single cow in the herd, what does her milk or butter fat cost? Can I feed her more suitably so as to lower the cost?

In one herd near Rigaud, Que., where records were kept for every month, the production of milk by the 11 cows varied from 4,680 pounds of milk by a 6-year-old grade up to 7,060 pounds, also by a 6-year old grade. The cost of feed is given at the same price for each cow in the herd, but it is obvious that there is considerable difference in the returns on the investment, for the milk varies in cost from 41 to 60 cents per hundred pounds, while for one dollar invested in feed there is an income of \$1.59 in the one case, but in the other, \$2.39. The feed for this herd is given as 500 pounds



1 GEORGE V., A. 1911

of corn, 400 pounds of hay and 20 pounds of straw for the first four months; in May 12 days' pasture, good clover hay and 3 pounds of grain per day; pasture for the next five months with grain on only six days; and ensilage, hay, green feed and straw in the remaining two months.

The average yield in a herd of 14 cows at St. Edwidge, Que., was 5,525 pounds of milk, 3.5 test, 195.2 pounds of fat.

The cost of feed is given by the owner as:—

2½ tons hay at \$9.. . . .	\$22 50
½ ton straw at \$4.. . . .	2 00
62½ bushels roots at 10 cents.. . . .	6 25
266 pounds meal at \$1.49.. . . .	3 72
Pasture.. . . .	6 00
<hr/>	
Average cost per cow . . . . .	\$40 47

Valuing milk at \$1 per 100 pounds, this shows, therefore, an average profit of almost \$15 per cow. The highest yield of milk was 6,540 pounds, showing a profit of \$25 over the cost of feed; the lowest yield of milk was 3,964 pounds from a 10-year-old grade that calved May 10. Such a cow appears to be kept at a loss.

At Ste. Emelie, Que., the cost of feed of one herd is put at—

133 bundles of hay at \$7.. . . .	\$9 33
Straw per cow.. . . .	3 00
6 bushels of roots at 15 cents.. . . .	0 90
145 pounds of meal at \$1.60.. . . .	2 32
Pasture.. . . .	6 00
<hr/>	
Average cost per cow.. . . .	\$21 55

Each of the eight cows in this herd gave over 3,300 pounds of milk, thus indicating a profit on each cow. The best yield was 4,296 pounds of milk from an 8-year-old.

A second herd at Ste. Emelie had feed valued at—

225 bundles hay at \$7.. . . .	\$15 75
Straw.. . . .	2 00
20 bushels turnips at 10 cents.. . . .	2 00
Meal.. . . .	50
Pasture.. . . .	6 00
<hr/>	
Average cost per cow.. . . .	\$26 25

The eight cows in this herd averaged 3,850 pounds of milk and 166 pounds of fat, showing, if milk be valued at \$1, an average profit of a trifle over \$12 per cow.

The highest yield was 4,570 pounds of milk, but the lowest was only 2,505 pounds, or a strong contrast between a loss on the year's feeding and a profit of \$19.45.

In one herd at St. Clet, feed was valued at—

1½ tons hay at \$7.. . . .	\$ 9 33
Corn.. . . .	1 00
Straw.. . . .	5 00
Pasture.. . . .	6 00
Meal.. . . .	1 00
<hr/>	
Average cost per cow.. . . .	\$22 33

The six cows gave on the average 4,728 pounds of milk and 168.5 pounds of fat; the lowest yield was 3,333 pounds, and the highest was 5,550 pounds from a 10-year old, thus indicating a fair profit of over \$33 from this animal.



## SESSIONAL PAPER No. 15a

Another member at St. Clet, estimated feed at—

2,200 pounds hay at \$10.. . . .	\$11 00
1½ tons straw at \$4.. . . .	5 33
8½ bushels roots at 10 cents.. . . .	85
340 pounds meal at \$1.25.. . . .	4 25
Pasture.. . . .	6 00

Average cost per cow.. . . . \$27 43

Five out of the ten cows in this herd gave over 4,300 pounds of milk, thus indicating a fair profit; the remaining five were very close to the danger line of no profitable return for the feed consumed.

At St. Prosper, Que., the average cost of feeding six cows was put by the owner at—

1½ tons hay at \$10.. . . .	\$11 25
1½ tons straw at \$2.50.. . . .	3 75
Roots.. . . .	6 00
Grain.. . . .	6 00
Pasture.. . . .	10 00

Average cost per cow.. . . . \$37 00

The average yield per cow was 4,312 pounds of milk and 172.8 pounds of fat, varying from 3,825 pounds of milk from an 8-year old up to 4,935 pounds of milk from a 10-year old: thus, while the average profit is low, each cow may be considered as giving a certain return on the investment, if not paying handsomely for her keep.

At Foster, Que., one member put the cost of feed at—

2½ tons hay at \$10.. . . .	\$25 00
¼ ton straw at \$4.. . . .	1 00
1½ tons corn at \$3.. . . .	4 50
225 pounds grain at \$1.33.. . . .	3 00
Pasture.. . . .	6 00

Average cost per cow.. . . . \$39 50

The average yield from sixteen cows was only 2,683 pounds of milk and 109 pounds of fat, the highest yield being under 3,500 pounds of milk. In this section, in addition to drought, severe damage was done to crops by grasshoppers, so that apparently profits were cut to a vanishing point.

It must be borne in mind, however, that profit accrues from the growth in value of the young stock, from the manure produced and the fertility added to the farms. There would be profit in selling the feed at the prices given above.

At Dixville, Que., the average cost of feed is given as—

1½ tons hay at \$10.. . . .	\$18 75
Green corn.. . . .	3 15
25 bushels turnips at 20 cents.. . . .	5 00
½ ton green oats at \$8.. . . .	4 00
125 pounds bran at \$1.25.. . . .	1 55
Pasture.. . . .	6 00

Average cost per cow.. . . . \$38 45

The twelve cows in the herd are credited with a yield of 4,248 pounds of milk and 165 pounds of fat, running all the way from only 2,675 pounds of milk and 125



1 GEORGE V., A. 1911

pounds of fat from a 4-year old, up to 5,575 pounds of milk and 210 pounds of fat from a 7-year old; thus again there is every indication of a loss in feeding at least six cows, but a profit of \$17 per head with some of the good ones.

In a herd near Compton, Quebec, where milk and feed records were kept for the full year, the average yield of 15 cows was 4,669 pounds of milk, 3.9 test and 181 pounds of fat. Apart from skim-milk, the creamery value of the milk was 90 cents per 100 pounds for the season, giving an average income per cow of \$42.08; deducting from this the average cost of feed, \$29.22, the average profit per cow was \$12.86.

The poorest cow gave 3,526 pounds of milk and 127.7 pounds of fat, leaving a profit of only \$2.09 for the year. The best cow gave 8,044 pounds of milk at a feed cost of \$41.73, thus returning \$30.66 profit.

The three poorest cows averaged 3,607 pounds of milk and 137 pounds of fat, giving a profit of \$4.16 each. With these three cows sold for beef, the average profit per cow for the whole herd would be \$2.18 higher.

The three best cows averaged 7,375 pounds of milk and 300 pounds of fat, giving a profit of \$27.63 each; that is, just about twice as much milk, *but more than six times as much profit*, as the three poorest cows.

Comparing two cows that gave within 40 pounds of the same weight of milk, it is found that one made \$7.69 profit, the other \$12.83. Two other cows that gave \$7.69 profit each differed very much in the yield of milk, one giving 3,709 pounds, the other 4,196 pounds. Two others that gave a profit of \$12.61 each had a difference in the yield of milk of 774 pounds.

It will thus be gleaned that an endeavour was made to feed each cow according to her capacity of production, the cost varied from \$25.69 to \$41.73. Hay and roots were fed liberally, but no ensilage. A little grain was given except for five months when on pasture. The heaviest feeding was in April, when two cows received as much as ten pounds per day of bran and oil cake.

## EXPERIMENTS IN THE COOLING AND NON-AERATION OF MILK FOR CHEESEMAKING.

REPORT BY MR. GEORGE H. BARR, CHIEF, DAIRY DIVISION.

The Dairy and Cold Storage Commissioner.

SIR,—According to your instructions, the experimental work on the care of milk for cheesemaking was continued at the Rideau Queen Cheese Factory, Smiths Falls, during the past season.

The object of the work this year was to secure further information regarding the best method of taking care of milk at the farms and to secure some information as to the extent of the loss which occurs in the manufacture of over-ripe and gassy milk into cheese.

Instead of using the milk from two herds and taking care of it ourselves as we did in 1908, we arranged to use all the milk delivered to the factory by the forty patrons and make it up in two separate vats. The patrons very kindly agreed to treat their milk according to our instructions, and by dividing them into two groups and giving each group different instructions from day to day, we were fairly successful in securing one vat of sweet, clean flavoured milk and one of over-ripe or tainted milk each day. Our instructions were only in regard to the care of the evening's milk, the morning's milk being delivered in the usual way. The treatment given the evening's milk is shown in the various tables throughout this report.

The uncooled milk at the factory was seldom very much over-ripe except after a very hot night, as it was usually all delivered at the factory before half past seven o'clock. A gassy condition of the milk was more frequently found. Two curds were so gassy that they almost floated before dipping.



## SESSIONAL PAPER No. 15a

The patrons delivered their milk in the usual way, all delivering their own except one route of four patrons.

The quantity of milk received each day was from 7,243 to 8,316 pounds. The milk was divided into two vats through a weigh can with two compartments, thus avoiding any mixing of the good and bad milk.

Sixteen patrons delivered their evening's and morning's milk in separate cans.

## CURD TESTS.

Curds tests were made of every patron's milk each day, and a record kept of how each patron treated the evening's milk.

The following tables show the different methods of treating the milk at the farms and the number and condition of the curd tests.

TABLE I.—Showing Results of Daily Curd Tests.

Exp. No.	Date.	Vat Number	Treatment the Milk received at the Farms.	Total Curd Tests.	Clean Flavour.	Solid Texture.
					per cent.	per cent.
2	June 11..	3	Cooled without aeration.....	14	85.7	92.9
		4	Aerated without cooling.....	22	45.4	59.1
3	" 16..	5	Cooled without aeration.....	13	100.0	100.0
		6	Stirred without cooling.....	23	73.9	91.3
4	" 17..	7	Cooled without aeration.....	14	100.0	100.0
		8	Stirred without cooling.....	21	66.7	76.2
5	" 24..	9	Cooled without aeration.....	17	82.4	94.1
		10	Stirred without cooling.....	18	88.9	94.4
6	" 30..	11	Cooled without aeration.....	19	73.7	84.2
		12	Aerated without cooling.....	17	23.5	52.9
7	July 1..	13	Cooled without aeration.....	18	77.8	88.9
		14	Aerated without cooling.....	19	26.3	47.3
8	" 2..	15	Cooled without aeration.....	17	100.0	100.0
		16	Aerated without cooling.....	20	70.0	85.0
9	" 14..	17	Cooled without aeration.....	19	79.0	79.0
		18	Stirred without cooling.....	17	35.3	53.0
10	" 15..	19	Cooled without aeration.....	19	73.7	79.0
		20	Stirred without cooling.....	19	10.5	47.4
11	" 16..	21	Cooled without aeration.....	16	81.2	81.2
		22	Stirred without cooling.....	19	26.8	37.0
12	Aug. 4..	23	Cooled and aerated.....	18	44.4	50.0
		24	Cooled without aeration.....	19	42.1	42.1
13	" 5..	25	Cooled and aerated.....	15	60.0	60.0
		26	Cooled without aeration.....	20	60.0	55.0
14	" 6..	27	Cooled without aeration.....	15	66.6	33.3
		28	Cooled without aeration.....	20	75.0	30.0
15	" 11..	29	Cooled without aeration.....	17	76.5	82.3
		30	Aerated without cooling.....	21	52.4	66.6
16	" 12..	31	Cooled without aeration.....	16	75.0	100.0
		32	Aerated without cooling.....	22	68.1	72.7

The cooled and aerated milk gave a little higher percentage of clean favoured curd tests than the milk cooled without aeration on the evenings of August 4 and 5, but the amount of gas in these tests was very much greater than in those from the milk cooled without aeration. Many of the cooled and aerated samples were very spongy and several floated, while those from the milk cooled without aeration showed only pinholes.



TABLE II.

Method of Treating the Milk at the Farms.	No. of Curd Tests.	Clean Flavour.	Solid Texture.
		per cent.	per cent.
Cooled without aeration.....	279	77·41	76·00
Cooled and aerated.....	30	50·00	50·00
Aerated without cooling.....	120	50·83	62·50
Stirred without cooling.....	103	54·37	64·07

TABLE III.

Method of Cooling the Milk at the Farms.	No. of Curd Tests.	Clean Flavour.	Solid Texture.
		per cent.	per cent.
Cooled by setting milk cans in water or iced water.....	116	81·03	80·17
Cooled by setting milk pails in water.....	98	75·51	76·53
Cooled by setting shotgun cans of water in the milk.....	58	75·86	70·69

It is quite plainly shown in table No. II. that cooling the milk without aeration gave much better results in flavour than did any of the other methods. Stirring without cooling gave better flavoured milk than did aeration, or aeration and cooling, but we cannot recommend this method, as the milk so treated arrived at the factory in an over-ripe condition when the nights were warm.

Table No. III. shows that cooling the milk by setting the milk cans in water gave slightly better results than the other two methods practiced.

Making a curd of each patron's milk every day indicated very plainly that fine flavoured milk could not be delivered to the factory in rusty or unclean milk cans, even when it was cooled.

TEMPERATURE OF THE MILK WHEN DELIVERED AT THE FACTORY.

The temperature of the evening's milk was taken as it was being emptied into the weigh can, and that of the mixed milk as it was running into the vat. The following tables show the treatment the milk received at the farms each day, the temperatures and acidity when delivered at the factory, also the lowest temperature of the air during the night.





FIG. 1.

On this stand 71 per cent of the curd tests were good when the milk was cooled without aeration. None were good when it was dipped. The milk cooled and dipped on this stand was the cause of the gassy condition in the curd marked 3-A in Fig. 1, Plate II.

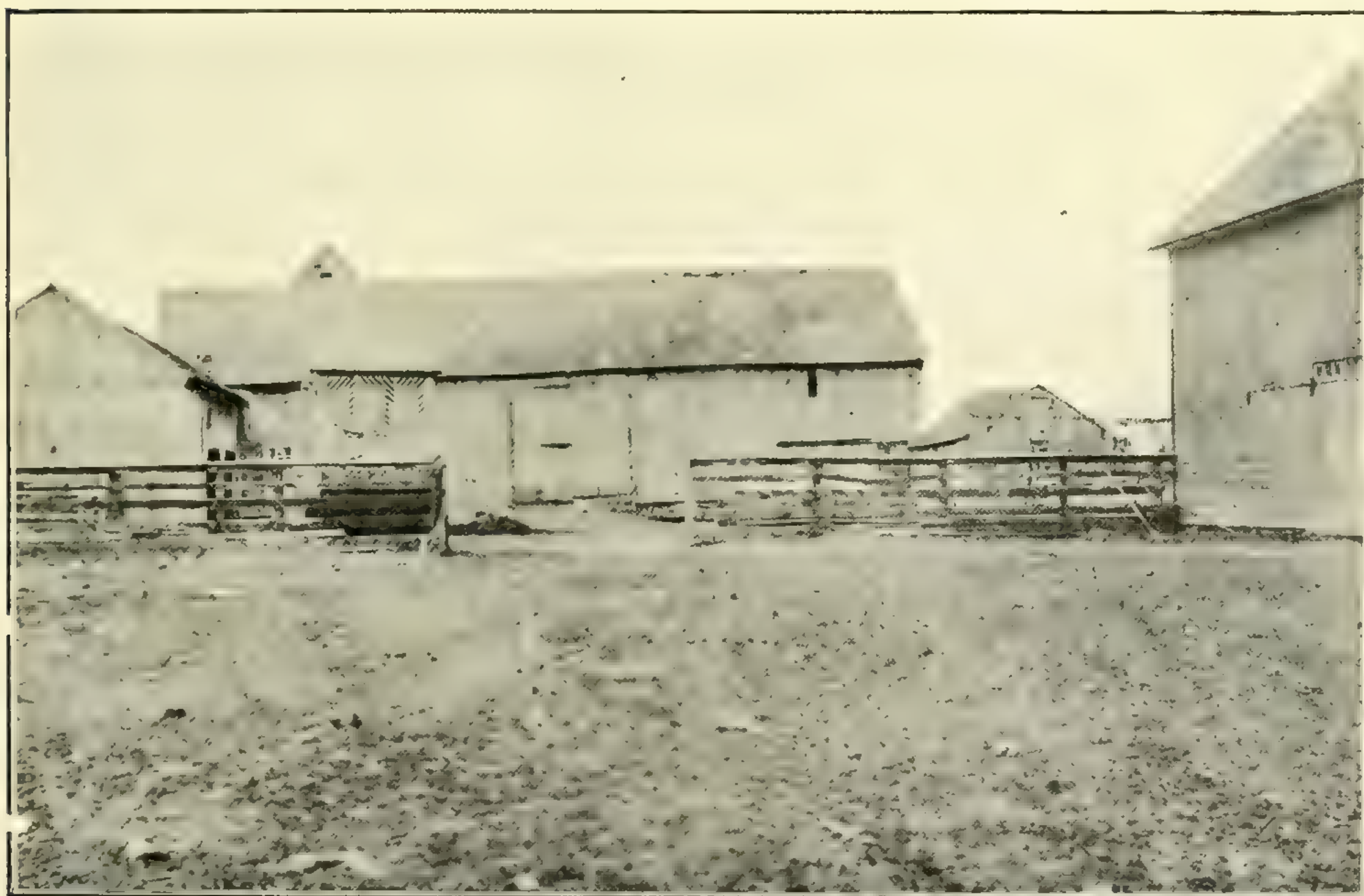


FIG. 2.

On the above stand 70 per cent of the curd tests were clean in flavour when the milk was cooled without aeration and only 17 per cent were clean when the milk was dipped without cooling.







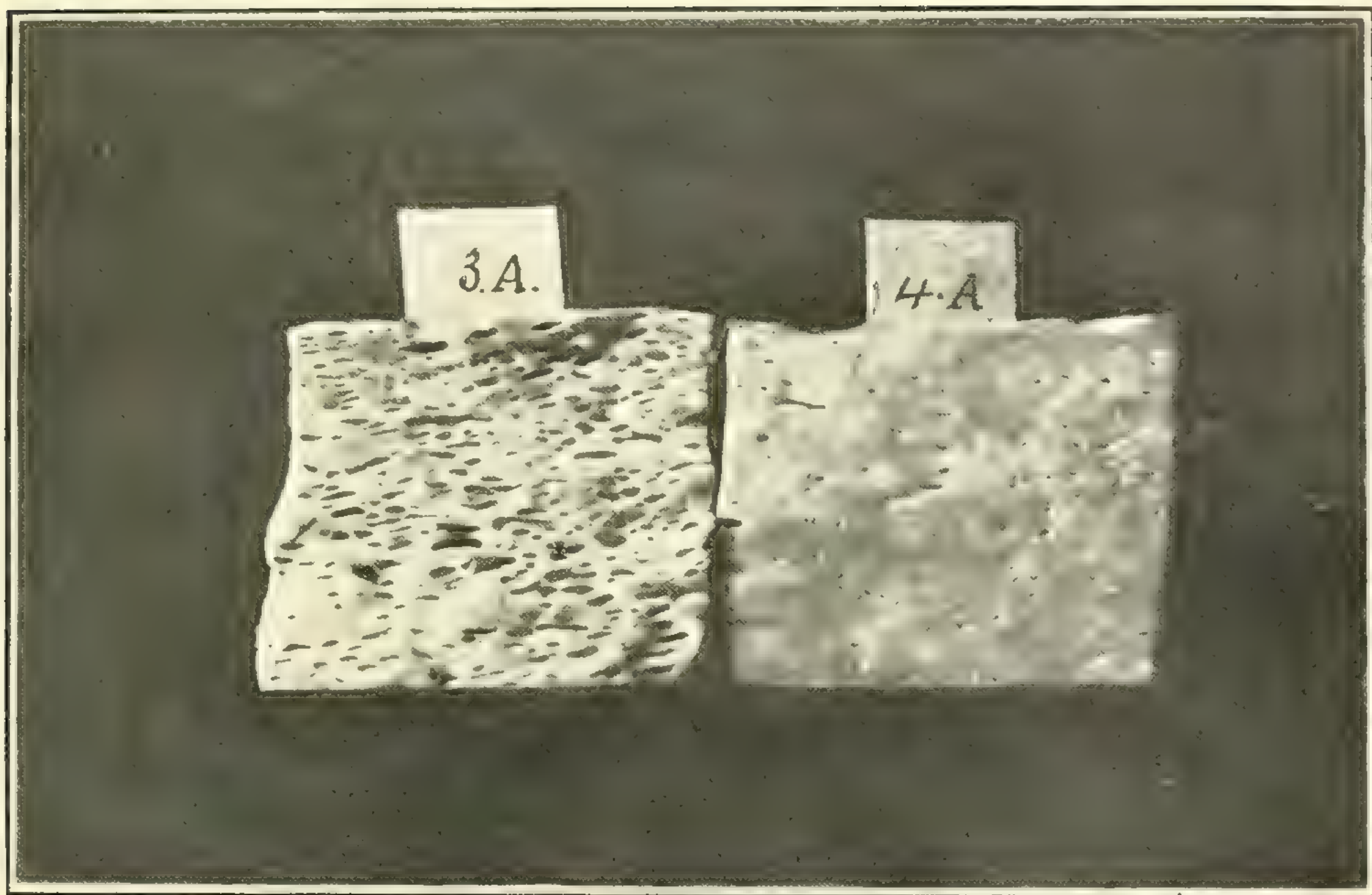


FIG. 1.

3-A—Curd made from milk cooled and dipped by half of the patrons.  
4-A—Curd made from milk cooled without aeration by the other half of the patrons on August 3, 1909.

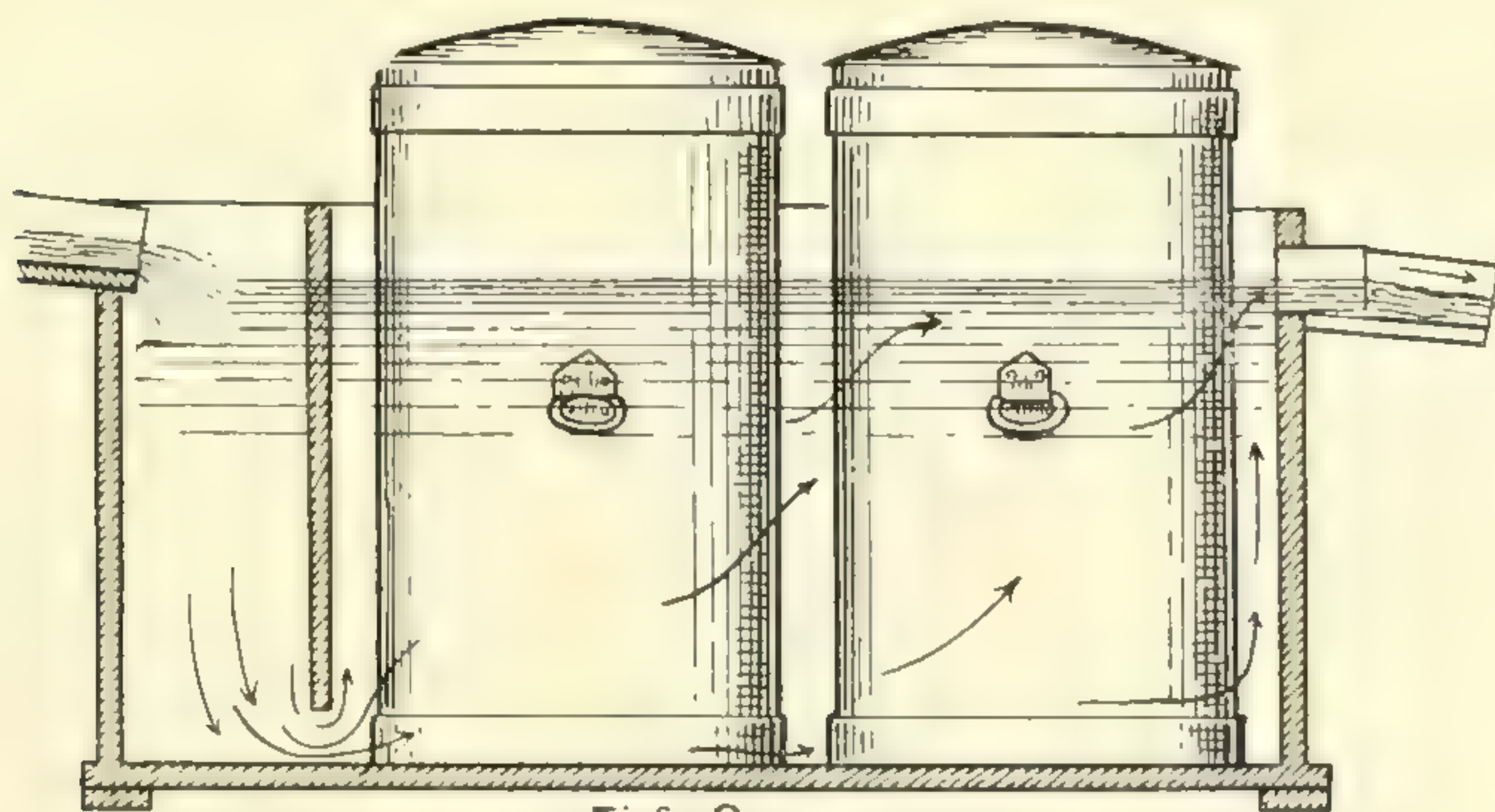
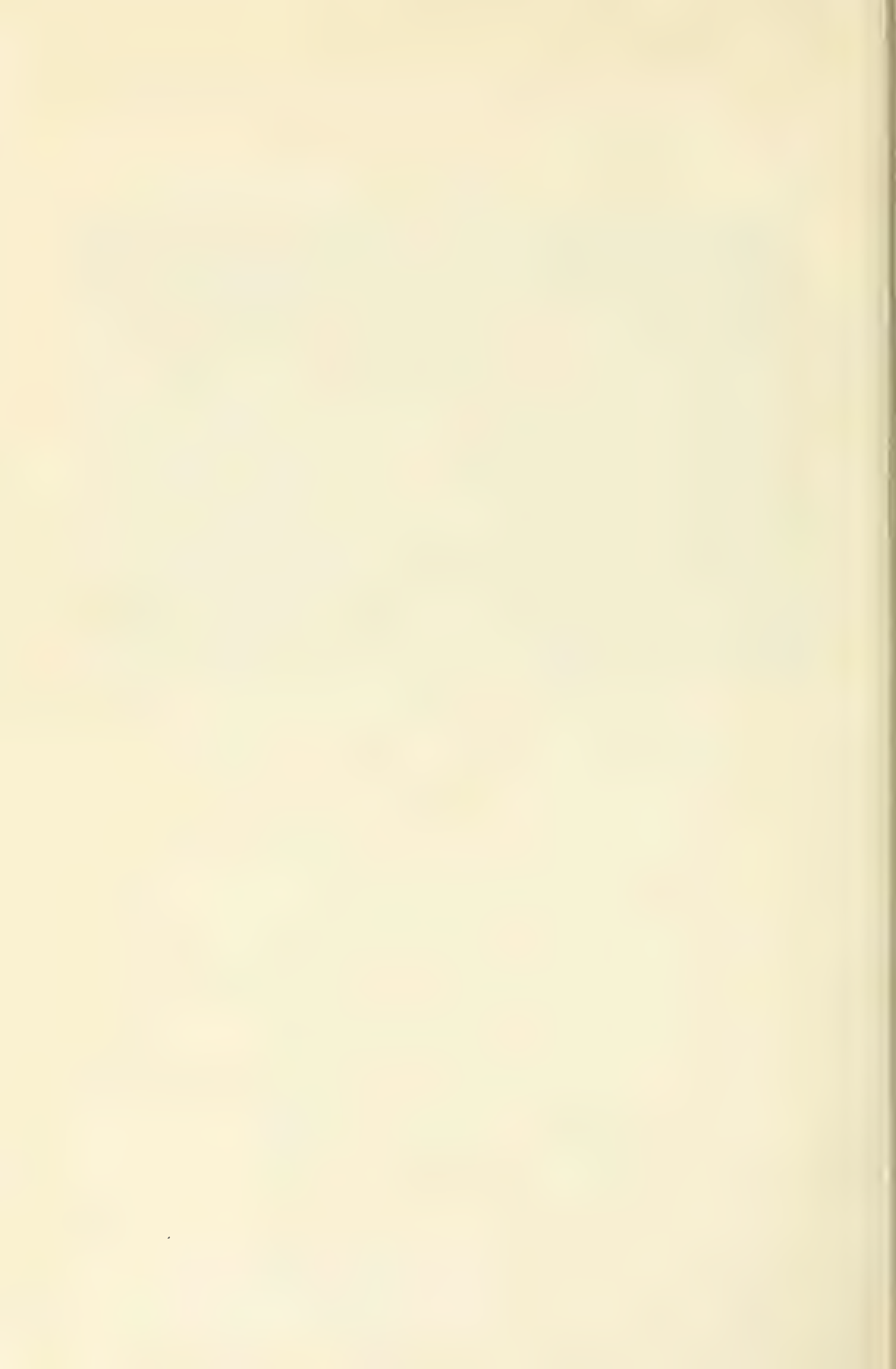


Fig. 2.

Tank for Cooling Milk in Cans.







SESSIONAL PAPER No. 15a

TABLE IV.—Showing Relation of Acidity to Temperature of Milk when delivered at Factory.

Date.	Vat Number.	Treatment the Milk received at the Farms.	Lowest temperature during night.	Average temperature of evening's milk at factory.	Average temperature of mixed milk at factory.	Per cent starter added to the milk in vats.	When starter was added to the Milk.	Acidity of the milk in the vats when all in.
June 11.	3	Cooled without aeration.	.....	.....	73.75	Three eighths	Milk half in	.20
" 16.	4	Dipped without cooling.	.....	.....	75.65	"	"	.21
" 17.	5	Cooled without aeration.	.....	.....	70.6	"	"	.21
" 17.	6	Stirred without cooling	.....	.....	71.36	"	"	.21
" 24*.	7	Cooled without aeration	59	.....	72.07	"	First milk in.	.20
" 30.	8	Stirred without cooling	59	.....	74.80	"	"	.21
" 30.	9	Cooled without aeration.	73	68.8	77.68	.....	.....	.20
" 30.	10	Most of it not cooled	73	.....	77.64	.....	.....	.21
" 30.	11	Cooled without aeration	64	62.62	71.63	Three eighths	Milk about half in	.205
July 1.	12	Dipped without cooling.	64	67.14	75.23	"	"	.225
" 2.	13	Cooled without aeration.	71	68	73.64	"	Just before setting	.20
" 2.	14	Dipped without cooling.	71	74.5	76.50	.....	.....	.235
" 14.	15	Cooled without aeration.	63	61.7	72.3	Three eighths	About 1,000 lbs. in vat	.195
" 14.	16	Dipped without cooling.	63	70	74.17	.....	.....	.205
" 15.	17	Cooled without aeration.	67	66	73.5	Three eighths	Milk about half in	.20
" 15.	18	Stirred without cooling	67	69.8	77.4	"	Milk about quarter in.	.225
" 16.	19	Cooled without aeration	65	67.1	74.6	"	First milk in	.205
" 16.	20	Stirred without cooling.	65	72.8	77.4	One eighth	Just before setting.	.215
" 16.	21	Cooled without aeration.	70	66.1	74.3	Three eighths	First milk in	.205
" 4.	22	Stirred without cooling	70	73	78.9	One eighth	Just before setting	.215
" 5.	23	Cooled and dipped	67	65	74.4	Three eighths	Milk about half in	.205
" 5.	24	Cooled without aeration	67	.....	76	"	"	.20
" 6.	25	Cooled and dipped	67	66	75.5	"	"	.205
" 6.	26	Cooled without aeration.	67	67.1	73.65	"	"	.20
" 11.	27	Cooled without aeration	67	.....	73.56	"	"	.205
" 11.	28	Cooled without aeration	67	.....	74.62	"	"	.20
" 12.	29	Cooled without aeration	60	61.1	69.65	"	First milk in	.205
" 12.	30	Dipped without cooling.	60	62	70.86	"	"	.21
" 12.	31	Cooled without aeration.	59	63.7	71.7	"	"	.21
" 12.	32	Dipped without cooling.	59	65	72.1	"	"	.225

\* No arrangement made with patrons about taking care of the milk.



1 GEORGE V., A. 1911

TABLE V.—Average Temperatures of the Milk as received at the Factory.

Method of treating the Milk at the Farms.	Number of Samples.	Temperature of evening's milk.	Temperature of mixed milk.
Cooled without aeration.....	279	64.88	73.03
Cooled and aerated. ....	30	65.50	74.95
Aerated without cooling.. ....	120	67.76	74.06
Stirred without cooling.....	103	71.86	75.98

There is nearly seven degrees difference between the evening's milk cooled without aeration and that stirred without cooling. This meant that the milk in the vats was sweet when cooled, and overripe when stirred without cooling. No instructions were given to the patrons as to the quantity of water or ice that should be used in cooling the milk. The matter was left to their own judgment.

When asked to cool their evening's milk, the patrons practiced three methods of cooling, as follows:—

TABLE VI.

Method of cooling the Milk at the Farms.	Number of Samples.	Temperature of evening's milk.	Temperature of mixed milk.
Cooled by setting milk cans in water or iced water.....	115	61.77	71.76
Cooled by setting milk pails in water.....	104	66.37	74.11
Cooled by setting shotgun cans of water in the milk.....	71	67.22	76.24

Setting the milk cans in water gave the lowest temperature and consequently the sweetest milk. This is no doubt due to the fact that some of the patrons used ice, and also that larger quantities of water were used when cooling in this manner than when cooling in pails or with shotgun cans.

When the evening's milk arrived at the factory over 69 degrees, or the mixed milk over 75 degrees, the milk in the vats was overripe when all in. There was always considerable tough or curdled cream on the strainer from the uncooled milk, especially when it was dipped. No such condition appeared on the strainer at any time from milk which was cooled without aeration and covered.

EFFECT OF DIFFERENT NIGHT TEMPERATURES ON THE CONDITION OF THE MILK.

The temperature of the air during the night had an effect upon the condition of the milk when delivered at the factory, as shown in the following tables:—



SESSIONAL PAPER No. 15a

TABLE VII.—Effect of Temperature during the Night on the Acidity of the Milk when Delivered in the Vats.

Lowest temperature during the night.	Treatment given evening's milk.	Average temperature of the milk.		When starter was added to milk.	Per cent starter used.	Acidity of milk in vat when all in.
		Evening's.	Mixed.			
59-60	Cooled .....	62.40	74.14	First milk in .....	Three-eighths	Per cent. 205
59-60	Not cooled .....	63.50	71.25	" " .....	"	215
63-64	Cooled .....	62.10	71.63	Milk half in .....	"	200
63-64	Not cooled .....	68.57	74.70	None and half in .....	"	215
65-67	Cooled .....	66.55	75.00	First and half in .....	"	202
65-67	Not cooled ..	71.30	77.90	None .....	"	220
67	Cooled and aerated ..	65.50	74.90	Milk half in .....	Three-eighths	205
67	Cooled only .....	67.10	74.80	" " .....	"	200
70-73	Cooled .....	67.00	74.00	None and first in .....	"	202
70-73	Not cooled .....	73.50	77.70	None .....	"	220

NOTE.—The 'cooled' milk was not aerated in any way. The 'not cooled' milk was either stirred or dipped.

When the milk was not cooled, it arrived in overripe condition (.22 per cent acidity) as soon as the night temperature went over 65 degrees, while the cooled milk arrived sweet when the night temperature was as high as 73 degrees.

TABLE VIII.—Effect of Temperature during the Night on the Flavour and Texture of the Curd Tests and the Curds in the Vats.

Lowest temperature during the night.	Treatment given evening's milk.	CURD TEST.		CURDS IN THE VATS.	
		Clean flavour.	Solid texture.	Clean flavour.	Solid texture.
		Per cent.	Per cent.	Per cent.	Per cent.
59-60	Cooled .....	83.8	94.1	100.0	100.0
59-60	Not cooled .....	62.4	71.8	33.3	33.3
63-64	Cooled .....	86.6	92.1	50.0	100.0
63-64	Not cooled .....	46.7	68.9	50.0	100.0
65-67	Cooled .....	76.3	79.0	100.0	100.0
65-67	Not cooled .....	22.9	50.2	.....	.....
67	Cooled and aerated ..	52.2	55.0	.....	.....
67	Cooled only .....	51.0	48.5	50.0	.....
70-73	Cooled .....	79.5	85.0	100.0	100.0
70-73	Not cooled .....	31.5	42.1	.....	.....

NOTE.—The milk 'cooled' was not aerated in any way. The 'not cooled' milk was either stirred or dipped.

High temperatures at night had practically no effect upon the condition of the curds when the milk was cooled and covered, but a decidedly bad effect when the milk was stirred or aerated without cooling. Even when the nights were quite cool, over 50 per cent of the curds in the vats were gassy and not clean in flavour when the milk was not cooled, but when the temperature of the night was 65 degrees and over, all the curds from uncooled milk were gassy and not clean in flavour.

CONDITION OF CURDS IN THE VATS.

From the four different methods of treating the milk at the frames, the condition of the curds was as follows:—

15a—5½



1 GEORGE V., A. 1911

TABLE IX.—Condition of Curds in the Vats.

Method of treating the Milk at the Farms.	Number of curds.	Curds clean in flavour.	Curds with no gas.
		Per cent.	Per cent.
Cooled without aeration.....	16	81.25	68.75
Cooled and aerated.....	2		
Aerated without cooling.....	6		33.33
Stirred without cooling.....	5	40.00	40.00

This shows very plainly that cooling the milk without aeration gave by far the best results in the curds.

FLAVOUR OF THE CHEESE.

TABLE X.—Showing Effect of Treatment of the Milk on the Flavour of the Cheese.

Method of treating the Milk at the Farms.	CHEESE EXAMINED.	
	When three weeks old by Geo. H. Barr.	On Oct. 16th by G. G. Publow.
	Flavour good.	Flavour good.
	Per cent.	Per cent.
Cooled without aeration.....	93.7	50
Cooled and aerated.....	50.0	100
Aerated without cooling.....	50.0	17
Stirred without cooling.....	100.0	50

The cheese were made between June 11 and August 12.

The above figures represent what would be called commercially, good flavoured cheese, not a perfect flavour.

The cheese were kept in the factory curing room from six to twelve days, where the temperature was frequently as high as 85 degrees, which simply ruined some of the cheese.

Mr. Publow's judgment was that there was a slight whey flavour in all the cheese. The whey was returned to the patrons in their milk cans and the whey tanks were not kept clean, which would account for this flavour, and shows the importance of having the whey pasteurized and the whey tanks kept clean.

The cheese made from milk 'stirred without cooling' show slightly better flavour than from the other methods of treating the milk, but the texture of these cheese was not as fine as the others, as this milk was nearly always overripe when delivered at the factory.



## SESSIONAL PAPER No. 15a

## LOSS OF BUTTER FAT IN THE WHEY.

The loss of butter fat in the whey from milk treated differently at the farm and in different conditions when received at the factory, was as follows:—

	Per Cent.
Cooled without aeration.. . . .	.20
Cooled and aerated.. . . .	.22
Stirred without cooling.. . . .	.22
Aerated without cooling.. . . .	.24
In sweet clean flavoured condition.. . . .	.19
In gassy condition.. . . .	.21
In overripe condition.. . . .	.25
In overripe and gassy condition.. . . .	.27

The loss of butter fat in the whey from milk cooled without aeration varied from .08 to .28, the loss increasing as the season advanced.

The loss from aerated milk varied from .18 to .30; from stirred milk, .18 to .27; from aerated and cooled milk, .20 to .25 per cent.

The small loss of butter fat in the whey from sweet, clean flavoured milk indicates that there would be little profit in skimming the whey if all the milk was delivered in this condition, and the question may be asked, does it pay to allow the milk to become tainted and overripe through carelessness, causing serious loss of butter fat in the whey, and then go to the expense of installing a butter plant to recover what never should have been lost?

## YIELD OF CHEESE.

The yield of cheese is calculated from the weight of the cheese as they were taken from the press. Many patrons of cheese factories seem to give more consideration to the yield of cheese than they do to the care of the milk, apparently forgetting that the condition of the milk when delivered at the factory has a great deal to do with the amount of cheese that can be made from it.

We were unable to get the milk in both vats to test the same per cent of butter fat during the month of June, but by changing patrons from one vat to the other, we succeeded in having both vats test the same after July 1, and were able to make close comparisons of the yield of cheese from different kinds of milk as shown in the following tables:—







## SESSIONAL PAPER No. 15a

This table shows that when the milk tested the same per cent butter fat in both vats each day, a larger yield of cheese was made from the clean flavoured, sweet milk, except on August 4 and 6, when the poorer flavoured milk made the more cheese. There was a slight mistake made in cutting the curd too soon with the first knife in vat 24 on August 4; otherwise, the work was done as carefully as possible.

Table XIII. shows the yield of green cheese from gassy and from overripe milk compared with milk which was in good condition. The percentage of butter fat and of casein was the same in both milks when milk in good condition was compared with overripe milk, and also when good milk was compared with gassy milk.

TABLE XIII.—Loss of Cheese from Overripe and Gassy Milk.

	Milk.	Average Acidity at Setting.	Average Time Setting to Dipping.	Average Time Setting to Salting.	Cheese.	Milk to 1 Lb. Cheese.	Cheese to 1 Lb. Butter Fat.
	Lbs.	Per cent.	Hrs. Min.	Hrs. Min.	Lbs.	Lbs.	Lbs.
Milk in good condition..	15,969	·21	3 19	7 51	1,437½	11·11	2·61
Over-ripe milk ..	15,715	·24	1 32	7 14	1,401	11·21	2·59
Milk in good condition..	15,311	·21	2 58	7 20	1,266½	11·20	2·63
Gassy milk . . . .	14,673	·21	2 50	8 35	1,294½	11 33	2·58

Loss per 1,000 pounds of overripe milk, ·83 pounds of cheese.

Loss per 1,000 pounds of gassy milk, 1·03 pounds of cheese.

The loss in cheese yield from manufacturing overripe milk was not as large as we expected it would be, but it is quite probable that a greater loss than these experiments show often occurs in many cheese factories. Being strong-handed, we were able to handle the curds to better advantage than many makers can under ordinary factory conditions, where the help is frequently insufficient for such emergencies. There are other cases in which the work is not done as carefully as it might be. The loss in handling overripe milk is due very largely to the fact that the curd in its early and tender stages must be handled quickly, which usually, though not necessarily, means roughly. If good judgment and care are exercised in doing the work rapidly, there need not be any very serious loss, but if it is done roughly and carelessly, there is no doubt the loss may easily be twice as large as it was in these experiments.

The loss in manufacturing tainted and gassy milk is largely due to the long time the curd must be held after dipping. If such milk is handled very carefully at cutting, and while cooking, the loss of butter fat in the whey should be about normal, but it is very difficult to prevent the loss that takes place while a gassy or tainted curd is maturing.

Although these experiments were not planned to deal with the question of the yield of cheese from milk containing different percentags of fat, some incidental information has been secured on this point, which can be used to good advantage when that subject is investigated.

Samples of cheese covering all the experiments, were sent to Prof. F. C. Harrison, Macdonald College, Ste. Anne de Bellevue, Que., for bacteriological analyses, between September 16 and October 13.



TABLE XIV.—Showing the Percentage of Undesirable or Gas Producing Organisms (B. Coli and B. Aerogenes) in Cheese made on the same days from Milk treated differently at the Farms.

Lot A.		Lot B.		Lot C.	
Cooled and Covered.	Aerated by Dipping.	Cooled and Covered.	Cooled and Aerated.	Cooled and Covered.	Stirred without Cooling.
Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
0.135	0.440	1.450	2.710	2.376	5.167

SUMMARY.

The general results of the work this year confirm those of 1908.

The difference in quality between the milk cooled without aeration and that aerated without cooling was not so striking as in 1908, when we had control of the milk at the farms ourselves. This might be expected, as it is difficult to get forty patrons to cool their milk regularly and keep everything scrupulously clean every day.

Making a curd test of every patron's milk each day showed that some patrons always sent sweet, clean flavoured milk, while others were very unreliable.

All the patrons sent better milk when they cooled the evening's milk and covered it, than they did when they were instructed to treat it in any other manner.

Milk delivered in rusty cans gave bad flavoured curd tests.

Milk from a number of farms was delivered at the factory in a very gassy condition when the patrons were asked to aerate it by dipping. A visit to these farms showed in some cases that the milk had been aerated in what we would consider bad surroundings, as in or near the barnyard; while in others, no fault could be found with the surroundings; indicating that it is practically impossible to tell where it is safe to aerate milk at the farms.

The worst gassy curds we had were from milk cooled and aerated by dipping for fifteen or twenty minutes.

Milk stirred, or aerated by dipping, without cooling, and left exposed to the air during the night, had a tough, lumpy cream that did not mix readily into the milk again.

The loss of fat in the whey is greater from gassy and overripe milk than from sweet, clean flavoured milk.

The loss of fat in the whey increased slightly as the season advanced.

There was considerable variation in the loss of cheese from day to day in manufacturing gassy and overripe milk for which no cause was apparent.

It is apparently difficult to make cheese containing a uniform percentage of moisture.

ACKNOWLEDGMENTS.

I am particularly indebted to Mr. J. G. Bouchard for his careful and painstaking assistance in carrying out in detail the necessary work in connection with these experiments; also to all the patrons of the Rideau Queen cheese factory. They were at all times willing to assist by carrying out our instructions in regard to the care of their milk. Without their co-operation it would have been impossible to carry out these experiments successfully.

I am much indebted to Prof. F. C. Harrison, Macdonald College, Ste. Anne de Bellevue, Que., for making a bacteriological analysis of the cured cheese.



## PART II.—EXTENSION OF MARKETS







## PART II—EXTENSION OF MARKETS.

FROM THE CHIEF OF THE EXTENSION OF MARKETS DIVISION, TO THE DAIRY AND COLD STORAGE COMMISSIONER.

SIR.—I have the honour to present herewith the annual report of the Extension of Markets Division.

As the greater part of the work of this Division is connected with the supervision of railway and steamship facilities for the carriage of perishable products, and as the system of inspection and supervision which we have organized is carried on with little change from year to year, it is obvious that in our annual reports more or less repetition is inevitable and that it is difficult to present this portion of our work in a new light.

In the twelve months under review we have continued our cargo supervision or inspection at ports in Canada and in Great Britain pretty much along the lines heretofore followed, but in a somewhat more comprehensive way, although with no increase of expenditure. We have employed the same number of cargo inspectors, namely, six at Montreal and Quebec during the season of navigation, one at Halifax during the fall and winter months, and five in Great Britain all the year round.

The special iced butter car services in the province of Ontario and Quebec were operated as usual and were carefully looked after by a staff of six inspectors, three of whom were employed at the railway terminals in Montreal, two in travelling over the iced car routes in Quebec and one doing similar work in Ontario.

### REDUCED OCEAN FREIGHT RATE ON BOXED FRUIT.

In order to encourage the development of the export trade in early apples, peaches, pears, &c., the steamship agents in Montreal were approached in the month of August with the view of getting a reduction in the ocean freight rate on boxed fruit shipped in cold storage to Great Britain, and as a result the Thomson, Donaldson and Allan Lines announced a rate of twenty-five shillings per ton measurement instead of the old rate of thirty shillings and nine pence. Later on the other lines met this reduction and the new rate thus became generally established.

### BREAKAGE OF PRINCE EDWARD ISLAND CHEESE BOXES DURING TRANSIT TO GREAT BRITAIN.

During the fall complaints were received from London respecting the broken condition of Prince Edward Island cheese boxes when landed at that port via Furness Line steamers from Halifax. An investigation was made and it was found that the responsibility for the major portion of the breakage rested with the Intercolonial Railway and was caused as follows: Prince Edward Island cheese are shipped by steamer from Charlottetown to Pictou, N.S., and there loaded in the cars. Frequently the quantity is not sufficient to fill a car and the boxes are then piled five or six tiers high at each end of the car, while the centre is filled with general freight consigned to Halifax firms. When the car reaches Halifax the local freight is removed at the city terminus and the car then shunted to the wharfs. By the time it is placed alongside the steamer the boxes at each end, with nothing to support them, have tumbled down and as a result a considerable percentage are broken. These facts were placed before the Manager of the Intercolonial Railway, who promised to have the matter remedied.

Another factor which helped to break the boxes was the use of rope nets in loading the cheese into the steamers at Halifax, but after some correspondence on the



1 GEORGE V., A. 1911

subject which I had with Messrs. Furness, Withy and Company, they provided platform trucks, such as are used at Montreal, which is a satisfactory contrivance for the safe loading of cheese.

#### APPLES FOR EXPERIMENTAL STORAGE.

In the early autumn, in accordance with your instructions, seven carloads of apples were purchased for experimental purposes and stored at four different points. We also made the necessary arrangements in March for the shipment of a portion of these apples to Glasgow. (See Part IV page    ).

#### REVISION OF BULLETIN NO. 1.

As our supply of Bulletin No. 1, containing the names and addresses of some British importers of farm products, is exhausted, we have now in hand a revision of this list, which should be available for distribution early in the summer.

#### CARGO INSPECTION.

As the method and scope of our cargo inspection work at Montreal, Quebec, Halifax, Liverpool, Manchester, London, Glasgow and Bristol, have been described at length in previous reports, I do not think it necessary to repeat the details here. In a quiet way this work proceeds from year to year, and while the good that has been accomplished in the aggregate is probably not realized by the average shipper, I am pleased to say that the large cheese and butter exporting firms in Montreal are quite sensible of it, as the following letters show:—

MONTREAL, November 27, 1909.

J. A. RUDDICK, Esq.,  
Dairy and Cold Storage Commissioner,  
Ottawa.

DEAR SIR,—We take pleasure in stating that the inspection of butter and cheese cargoes at this port and at the ports of discharge in the United Kingdom is a great advantage to the dairy interest of Canada. Since the inspection of cargoes has been put into operation we have less complaints and claims for goods being damaged in transit.

We believe that the fact of inspectors taking note of how cargoes are handled deters steamship companies from being as careless about matters of this kind as formerly, knowing that the matter will be reported.

Besides, the importer in England looks after deliveries much more promptly, as any neglect on their part to do is also reported on by the inspector. Formerly, many importers allowed butter and cheese to lie on the docks for days and even weeks before taking delivery, with the result that the Canadian trade had to pay large claims for damaged goods. Such things are now almost unheard of, because the importer knows that it is easy for us to find out if he had been prompt in taking deliveries or if he had allowed his goods to remain exposed to conditions of weather.

In addition, the fact of exporters being able to know what temperatures cargoes have been carried at is of great importance to shippers of all kinds of perishable or semi-perishable goods.

Therefore, we believe the inspection of cargo is money well spent.

Yours truly,

(Sgd.) JAS. ALEXANDER, LIMITED.



SESSIONAL PAPER No. 15a

MONTREAL, November 27, 1909.

J. A. RUDDICK, Esq.,  
Dairy and Cold Storage Commissioner,  
Ottawa.

*Government Inspection at Steamers.*

DEAR SIR,—With reference to your inquiry as to our opinion as to the work accomplished by the government inspectors at wharfs and as to the advisability of their continuance. We consider that no work that the Department of Agriculture has instituted in connection with the dairy industry of Canada has had such an important bearing or brought about better results than the systematic inspection by your inspectors at the steamship wharfs and at the railway sheds. There is no doubt that since this systematic inspection has been in force it has resulted in more careful handling of the dairy products at Montreal, and has also insured better and more careful delivery at the English ports. We venture to say every Canadian exporter and every importer of dairy products will confirm this statement. Before this systematic inspection was adopted, cheese were often delivered in England with fully 75 per cent of the boxes badly broken and not unfrequently in a heated condition. Now, under your present system of inspection any cheese that are delivered in either heated condition or with boxes broken are at once reported to the shipper. The same applies to butter. The result accomplished is that our Canadian dairy products are now delivered in almost perfect condition. Now, with the competition that we are experiencing with New Zealand dairy products, you can readily see it is of the utmost importance that close supervision should be maintained over these exports to enable us to insure our products landing in England in as good condition as those of our competitors from New Zealand.

We consider Canada is exceptionally fortunate in having such a system of instruction as is supplied by the government inspectors to the cheese and butter factories, but all this would be partially lost, in our opinion, if inspection as to delivery of dairy products to steamers is not also maintained on the wharfs. This, in our opinion, is a most important connecting link with the other. Both, in our opinion, are mainly the reasons why our farmers and merchants have been able to get such good prices the last few years as compared with former years.

Yours truly,  
(Sgd.) HODGSON BROTHERS & ROWSON, LTD.

MONTREAL, November 27, 1909.

J. A. RUDDICK, Esq.,  
Dairy and Cold Storage Commissioner,  
Ottawa, Ont.

DEAR SIR,—It is a subject of general comment and is continually referred to by practically every exporter in the trade who has had an opportunity of observing, that the conditions of carriage of cheese and butter by the steamers sailing from Montreal to the ports in England to which butter and cheese are exported, have tremendously improved, and it is constantly remarked that what has been done in this connection is one of the most meritorious things the government has done in connection with our trade. Fifteen years ago cheese were so badly carried that great injury was done to them in transit; in hot weather they were overheated, being so stowed in the ships that circulation of air was impossible between the packages, and the goods arrived in England heated, damp on the surfaces from sweating, mouldy and worth shillings per hundredweight less than when they left this port. Through the energy of the department all this has been changed; goods are now carried in such a condition that it is a most unusual thing to have any complaint of their condition on arrival. They are so



1 GEORGE V., A. 1911

stowed in the vessels that air circulates freely amongst the goods and every precaution is taken to see that no damage of any kind occurs. Generally, I believe that every person in the trade will endorse everything I have said in this connection. It is the one thing that stands out prominently in the handling of dairy products, and for which the whole trade here give the government credit.

Yours truly,

(Sgd.) LOVELL & CHRISTMAS, LTD.,

per R. M. BALLANTYNE,  
*Managing Director.*

MONTREAL, November 27, 1909.

J. A. RUDDICK,

Dairy and Cold Storage Commissioner,  
Ottawa, Ont.

DEAR SIR,—In reference to your inquiry as to whether the cargo inspection has been useful and served a good purpose or not, we beg to say that, in our opinion, it has been a splendid check on the steamship companies, and it has stimulated them to give us a better service.

The inspection at ports in England on arrival has also served to bring about a better handling of the goods and has been a great help to shippers from Canada in confirming our complaints to factorymen of the necessity of using better boxes and taking greater care in putting up both butter and cheese in better condition for the English markets.

We may add that we think also the refrigerator car inspection has served a like purpose.

During past years we have sometimes felt that our English friends were rather severe in their complaints; but the presence of inspectors at the port of arrival has served first, to modify their views, and, finally, to draw from them the compliment that there has been great improvement both in the condition and in the quality of Canadian cheese and butter exported from Canada.

Yours truly,

(Sgd.) A. A. AYER & CO., LTD.,

per A. A. AYER,  
*President.*

#### RELATIONS WITH STEAMSHIP COMPANIES.

The fact that it is the duty of the cargo inspectors to watch the loading and unloading of the steamers, the stowage of the freight in the ships, &c., and to report instances of rough handling or improper stowage, might lead one to suppose that the relations between the department and the inspectors on the one hand and the steamship companies on the other are not altogether harmonious. However, in justice to the shipping companies I must say that such is not the case, and although our cargo inspectors at Canadian ports have no legislative enactment behind them, their authority has never been questioned by the steamship companies and they are afforded every facility to carry on their work. In Great Britain also the inspectors are allowed on the docks and in the ships only by the courtesy of the steamship companies, but on neither side of the water have we ever had any serious trouble. The shipping companies realize to a greater extent than is commonly supposed that their interests are bound up with those of the producers and shippers and that whatever is done to promote and develop the export trade in farm products cannot fail to benefit their business as well.



## SESSIONAL PAPER No. 15a

During the past year our cargo inspectors in Great Britain transmitted to me letters which they had received from the managers of the steamship companies at the several ports, in which the writers have expressed their approval of the department's scheme of cargo inspection, and I quote two of these letters as typical of them all.

*Letter from the Agent of the Allan Line Steamship Company at Glasgow, dated January 3, 1910.*

'We have been asked to give an expression of our opinion of the results of the work done by the inspectors of the Department of Agriculture at the landing of all Canadian produce.

'It is the duty of the inspector to be in attendance at the discharge of all steamers carrying Canadian produce, so that he may be able to report fully to the department. The principal imports from Canada are cheese, hams and apples in barrels and boxes, and the department calls for a report by the inspector of the stowage on board the steamer, the methods and care taken in handling during discharge, the ventilation provided and the condition of the contents. A special report is made out for butter and green fruits carried in the refrigerator chambers, and a comparison is made of the temperatures recorded daily on the voyage by the reading of the steamer's thermometers and the reading of a machine called a 'Thermograph,' which is put on board by the department at Montreal.

'We understand that a thorough inspection of all shipments is made at Montreal and the whole system has been organized so that the department may have all possible information. We have given every facility to the department to enable it to carry out its objects, and have formed the opinion that when the work is done by a thoroughly competent inspector the supervision exercised has good results and it is a mutual advantage to the carrier and consignee. In this respect we have been very fortunate in Glasgow. We cannot speak too highly of the efficient manner in which the cargo inspector discharges his duties, and we have every confidence in his capabilities as an expert. His tact, his fairness in dealing with reports and his unfailing courtesy have gained for him the respect of the trade.'

*Letter from the Agent of the Canadian Pacific Steamship Line at Bristol, dated January 15, 1910.*

'I have no hesitation in saying that the steamship lines are quite in accord with the very excellent system of cargo inspection as carried out by your department at this port, and, while it is undoubtedly a check on the steamship lines, yet the interests of the lines and your department are, as far as I can see, entirely identical, and it is to our common interest to improve wherever we can the carriage of Canadian produce.

'Working, therefore, on this common interest, we welcome any criticism which tends to the improved landed condition of Canadian produce, believing, as we do, that the better we are able to land the goods, the better for the development of Canadian trade interests in this district.'

## THERMOGRAPHS.

In this report I wish to emphasise the value of the thermograph in our work, as it has been of the very greatest assistance in bringing about improvements in connection with both ocean and railway transportation.

These instruments were first used by the department in the year 1900, when thirty were purchased. Each year since an additional number has been bought, so that in the coming season of 1910 we shall have a total stock of two hundred and thirteen thermographs, made up of two hundred that will record for fourteen days, ten that will record for thirty-five days and three that will record for seven days. According



1 GEORGE V., A. 1911

to the makers of these instruments, the Canadian government has been the largest purchaser of thermographs in the world, and I think I am not in error in saying that in no other country are so many thermographs in use either in a public or private capacity. The fourteen-day thermographs cost the Department \$32.25 each in quantities of twenty or more, and I presume that a higher price would be charged for a single thermograph. The above figure covers also a supply of ink and fifty charts.

All our thermographs are carried in locked wooden boxes which are perforated so as to admit the air readily. This enables the instrument to be stowed with cargo in the refrigerator chambers and in the ordinary holds of ships and in freight cars on our railways. If the thermograph is firmly braced, a good temperature record can be obtained in ordinary freight cars, although the conditions are very adverse owing to the vibration and jolting of the car. When a thermograph is carried in a car it will indicate on the chart the delays in transit as well as the temperature, because, when the car is motionless the line is fine and distinct, whereas, when the car is in motion the line is more or less blurred.

In the season of 1909-10 four hundred and fifty-one records of temperature were obtained in steamers sailing from Montreal and Quebec, and twenty-three in steamers sailing from Halifax. These records indicated every variation of temperature each day of the voyage and were of great assistance to the refrigerating engineers in the ships, as, if any unusual fluctuation was shown, they tried to discover the cause and to prevent a recurrence in subsequent voyages.

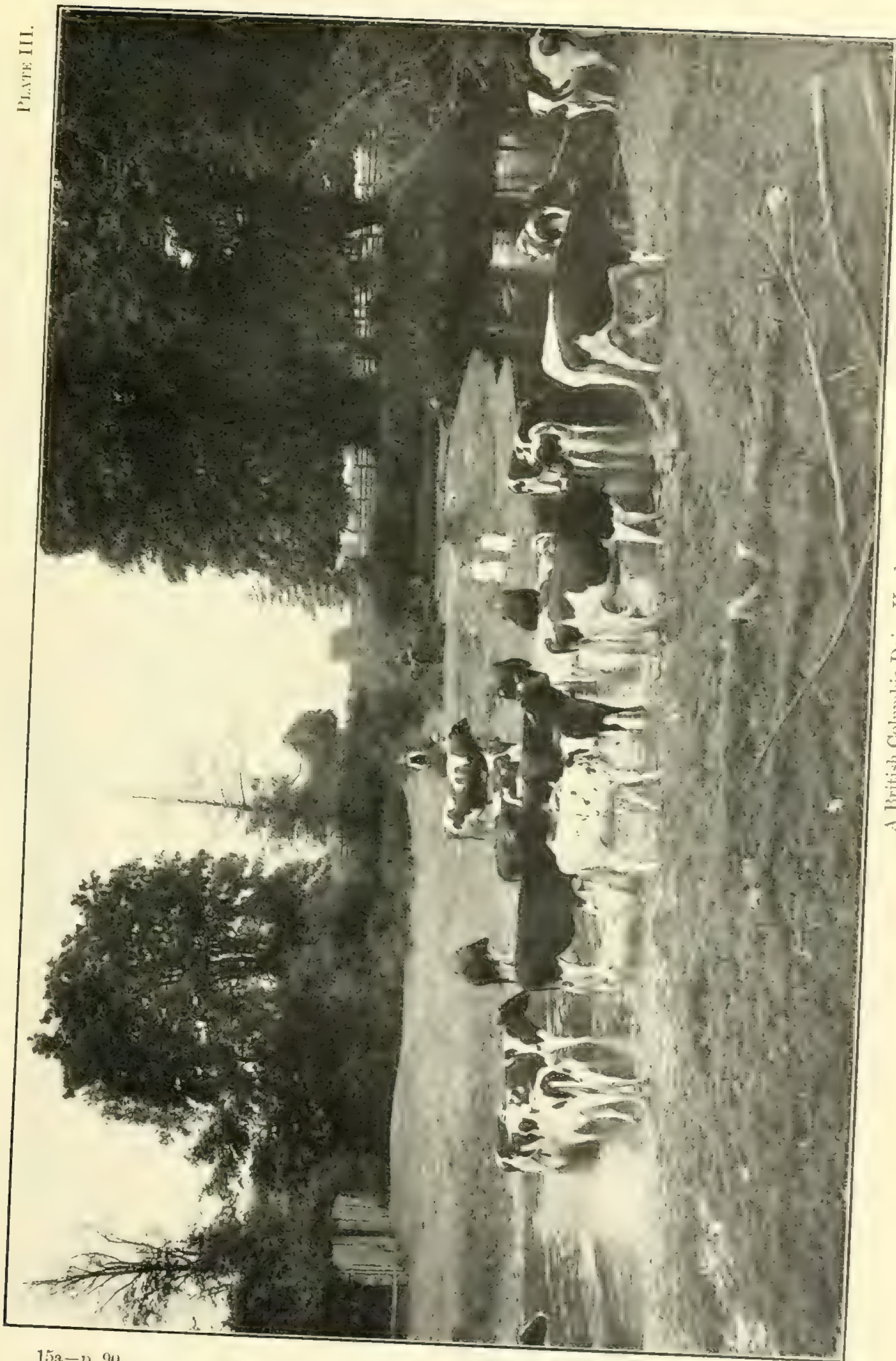
When a ship in which thermographs have been placed reaches port in Great Britain, our cargo inspector there removes the instruments as soon as they become accessible and takes off the charts, which he mails to the office at Ottawa, together with a memorandum giving the name of the vessel, date she arrived and date thermograph was removed. When the charts are received here full particulars are written on the face, such as steamer's name, sailing date, port of destination, where placed in ship, kind of produce placed with, date of arrival, &c. The chart is then used as a negative and six blue print copies are made, two of which are retained in the office, one is sent to the Montreal Board of Trade, one to the steamship agents, one to the chief engineer of the steamer and one to our Montreal office.

During the past year we placed thermographs in cars carrying tender fruits from the Niagara peninsula and western Ontario to the Canadian Northwest; in cars carrying butter to Montreal and apples to St. John, and also in steamers sailing from Montreal to European and South African ports. We also used them to obtain accurate records of temperatures in commercial cold storage warehouses, which are under government subsidy, and in creamery cold storages for which the departmental bonus was applied for. In short, we found the thermograph an invaluable instrument in connection with a great many places of our work, and we hope to use it even more extensively in the future.

#### PRICE INVESTIGATIONS.

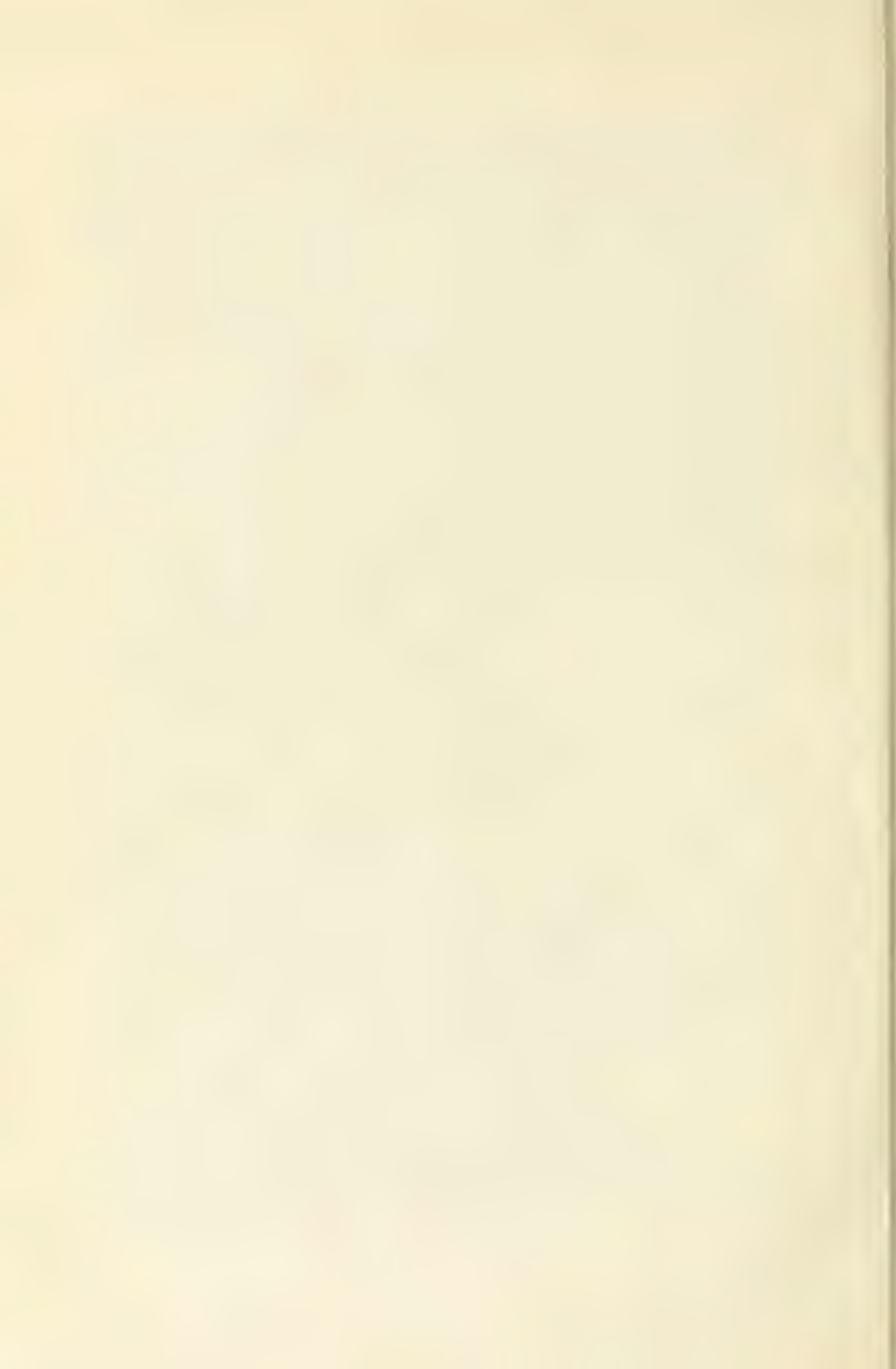
In the course of the year lengthy comparative statements were compiled by this division showing weekly market quotations for live hogs, bacon and hams in several markets in Canada and the United States and in Liverpool, extending over a considerable period of time. Another matter dealt with somewhat fully was the comparative cost of flour and bread in Chicago, Toronto, Montreal, Ottawa, Liverpool and London. Full reports on both these subjects were prepared and submitted to the Honourable the Minister of Agriculture.





A British Columbia Dairy Herd.





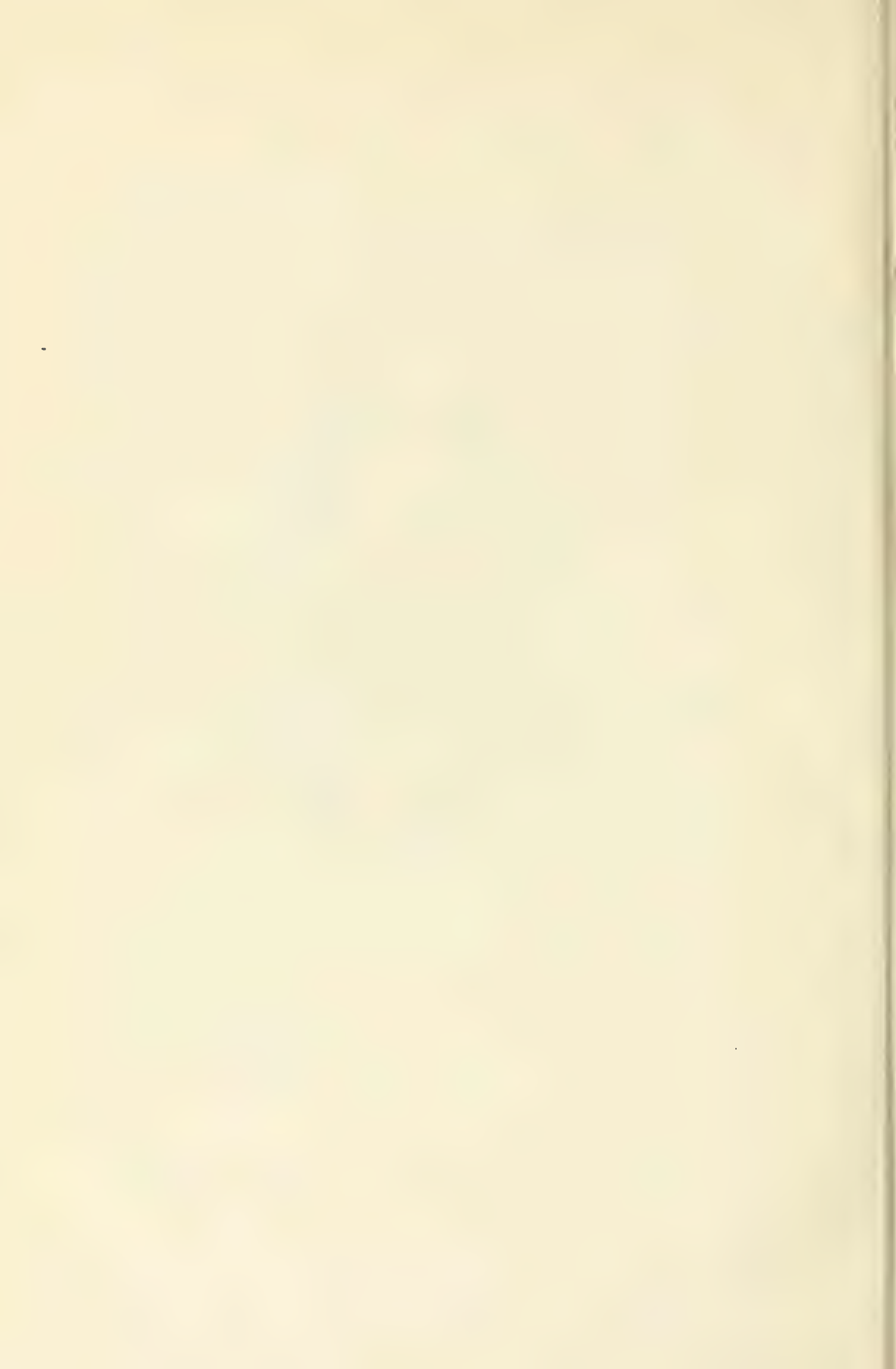




KETCHAN GRAHAM.

The late Ketchan Graham of Belleville, Ont., was one of the pioneers of organized dairying in Canada. In company with the late Hon. Robert Reid, he built the first cheese factory (Front of Sidney) in the Belleville district in 1866 and was the first president of the Dairymen's Association of Eastern Ontario.







SESSIONAL PAPER No. 15a

THE EXPORT BUTTER TRADE.

In the last three fiscal years the exports of butter from Canada have been as follows:—

Year ended March 31.	Lbs.	Value.
1908.. . . . .	4,786,954	\$1,068,703
1909.. . . . .	6,326,355	1,521,436
1910.. . . . .	4,615,380	1,010,274

The quantity of butter shipped from the port of Montreal during the season of navigation in 1909 was 39,447 packages, compared with 93,766 packages in 1908, and 66,896 packages in 1907. With the exception of 150 packages carried in ordinary storage and 79 packages in cooled air, all the butter exported from Montreal in 1909 was carried in cold storage.

The following table shows the comparative temperatures of butter for the past five years when delivered to the steamers at Montreal and when unloaded at the port of discharge in Great Britain.

—	No. of Pkgs Tested.	Average Temperature at Montreal.	Average Temperature at Port of Discharge.	Average Increase in Temperature During Voyage	Average Reduction in Temperature During Voyage.
		Deg.	Deg.	Deg.	Deg.
Montreal to Liverpool—					
Season 1905 . . . . .	843	39.3	24.9	.....	14.4
" 1906 . . . . .	456	39.2	21.4	.....	17.8
" 1907 . . . . .	183	33.7	23.1	.....	10.6
" 1908 . . . . .	86	37.5	25.0	.....	12.5
" 1909 . . . . .	43	37.6	25.7	.....	11.9
Montreal to London—					
Season 1905 . . . . .	859	40.2	26.6	.....	13.6
" 1906 . . . . .	527	41.7	20.5	.....	21.2
" 1907 . . . . .	217	36.2	15.3	.....	20.9
" 1908 . . . . .	153	39.6	18.2	.....	21.4
" 1909 . . . . .	87	36.3	22.9	.....	13.4
Montreal to Bristol—					
Season 1905 . . . . .	607	36.9	23.9	.....	13.0
" 1906 . . . . .	361	36.9	23.9	.....	13.0
" 1907 . . . . .	186	35.4	22.9	.....	12.5
" 1908 . . . . .	226	35.3	23.5	.....	11.8
" 1909 . . . . .	148	31.5	21.3	.....	10.2
Montreal to Glasgow—					
Season 1905 . . . . .	403	35.8	28.7	.....	7.1
" 1906 . . . . .	374	35.0	24.1	.....	10.9
" 1907 . . . . .	183	35.9	19.2	.....	16.7
" 1908 . . . . .	75	35.0	23.9	.....	11.1
" 1909 . . . . .	79	32.4	22.7	.....	9.7
Montreal to Manchester—					
Season 1905 . . . . .	87	34.4	30.4	.....	4.0
" 1906 . . . . .	33	41.2	38.8	.....	2.4
" 1907 . . . . .	7	40.9	34.0	.....	6.9
" 1908 . . . . .	.....	.....	.....	.....	.....
" 1909 . . . . .	11	28.8	33.5	4.7	.....

The report of our Glasgow inspector mentions the fact that Canadian butter was promptly lifted at that port last season. The improvement in this respect was partly due to a suggestion made by the inspector to the steamship companies that they should notify the different consignees by telephone as soon as their butter was landed and



1 GEORGE V., A. 1911

passed by the Customs. This plan was adopted and that it worked well is shown by the results.

## LETTERS FROM IMPORTERS.

As usual this division has received during the year letters from a number of firms in Great Britain who are large importers of dairy produce. Most of these letters refer to cheese, but the following two extracts have reference to the butter trade.

*From W. Titley & Sons, Bristol, dated February 14, 1910.*

‘Owing to high prices, we have received very little butter; indeed a large portion of what we contracted for we re-sold the other side.

‘There is still much to be desired in regard to packages and the paper that is used: neither compare favourably with New Zealand and Australian packing.’

*From W. & F. Gilmour, Glasgow, dated January 10, 1910.*

‘Butter.—We regret to say that Canada has only been able to send us a very small quantity of butter during the past season, but we hope the time is not far distant when she will hold a place in the British market for her butter similar to what she holds in the cheese trade. All the conditions are ready to cope with the trade, if the production is sufficient, as we have a good and quick transit, and given ‘choice’ quality of butter, our market is willing to take any quantity and pay top prices for a suitable article.

‘We want a supply from Canada in the summer similar to what we are presently receiving from New Zealand and Australia in the winter.

‘We only imported a few small lots of butter during the season, one or two of which were “choice quality,” but generally, the others were not so satisfactory.

‘The Danish standard of quality should be the factoryman’s aim, as he will find there quality, texture and saltiness suitable for the consumer on this side.’

## THE EXPORT CHEESE TRADE.

The following table shows the quantity and value of cheese exported from Canada in the fiscal years ended March 31, 1904 to 1910 inclusive.

Year ended March 31st.	Lbs.	Value.
		\$
1904.....	212,432,366	25,975,998
1905.....	216,080,606	19,969,363
1906.....	214,438,960	23,679,419
1907.....	213,614,643	26,160,856
1908.....	189,710,463	22,887,237
1909.....	164,907,139	20,384,666
1910.....	180,859,886	21,607,692

The quality of the cheese exported during the season of 1909-10 was very satisfactory and its condition on arrival at ports left little ground for complaint. Unfortunately not so much can be said regarding the condition of the packages when they reached the warehouses of the consignees, as the percentage of broken boxes was usually very high. The truth of the matter is that a great many boxes are shipped that are only fit for kindling wood and the remarks in the letters which follow, regarding broken boxes, are quite justified by the facts. The breakage is not caused by rough handling during transit, but is due to the poor quality of the wood of which many of



## SESSIONAL PAPER No. 15a

the boxes are made and to the carelessness of many cheesemakers in using boxes which do not properly fit the cheese.

Another matter which calls for adverse comment by the merchants over-sea is the discrepancies which they find between actual and marked weights in occasional lots of cheese. A loss of ten pounds on even an odd box of cheese in each shipment means considerable to the importer in the aggregate, but greater than the monetary loss is the feeling of irritation which is developed in the merchant who considers he is being defrauded. This year an effort will be made by this branch to check this evil, which, if allowed to grow, will undoubtedly hurt our export trade.

## LETTERS FROM MERCHANTS IN GREAT BRITAIN.

The following letters contain a review of the Canadian export cheese trade for the year 1909-10 from the standpoint of the Old Country importer.

*From Messrs. Geo. Wall & Co.—Lovell & Christmas, Ltd., Liverpool, dated February 15, 1910.*

‘Cheese.—Ontario has been very good throughout the season; Townships fair—no improvement on previous years; Quebecs much improved in make and quality.’

*From Messrs. Andrew Clement & Sons, Ltd., Manchester, dated February 16, 1910.*

‘The quality of Canadian cheese this year, we think, has been quite up to average, and of late we have had no cause of complaint regarding boxing or the condition in which goods are received from the shipping companies’ hands in both Manchester and Liverpool. Cheese appear to be handled in the discharging much better in Liverpool than in Manchester, yet we think that Manchester has improved this year, as goods have not been delivered to us in such a deplorable state as we have experienced in some of the years gone past, to which condition you will remember we drew your attention.’

‘We have had one or two parcels waxed, and buyers are getting more accustomed to this treatment and do not resent it so strongly as they did at its inception. There is a marked improvement in the method of waxing, in that the covering is more slight, and what retailers complained of was, we think, that the waxing was too thickly done and scaled off in pieces. Cheese in our opinion are not improved by this method, but then importers have to consider the saving in shortweight and will, we are certain, encourage this treatment more and more. Still we are of the opinion that cheese that are allowed to mature in the natural way are of finer quality than those that are waxed, which treatment, though keeping the cheese perfectly mild, does not allow of them maturing to a rich flavour.

‘We have several times asked our Montreal house to take up the point of bad weights with shippers, and have sent claims which our Montreal house find extreme difficulty in getting shippers to recognize. The average shortweight allowed on cheese is in many cases quite insufficient, and we feel quite certain is wrong in many instances, as goods could not possibly have lost the difference between the short weight allowed to us and what we find on weighing them immediately on arrival at this side, and we strongly assert that our position is right, even against the document of a certified weigher.

‘We shall be interested to hear if you have any other complaint from importers on this point, as it is very important to importers and is getting so aggravating that it is bound to be brought up before the associations at this side.’

*From Messrs. W. Titley & Sons, Bristol, dated February 14, 1910.*

‘In regard to cheese, we can only repeat our old complaint that the boxes are too frail for the weight of the cheese they contain.



1 GEORGE V., A. 1911

‘If this matter could be rectified so that the boxes remained intact, the cheese would keep much better and there would be less shrinkage.’

*From Messrs. G. Bradbeer & Co., Bristol, dated February 14, 1910.*

‘We have very little that we can report to you as to the working of the last season and have not a great deal to complain about. The bulk of our shipments have come to hand in a fairly satisfactory condition and in no case has there been any damage done other than of a very trifling character. The principal difficulty that we have had to contend with has been the broken condition of the boxes, especially the shipments of eastern cheese. Many of these have been delivered to us in a most shocking condition, not only involving a considerable amount of labour in tying up the boxes, but seriously interfering with the value of the goods themselves, and we think some reform in this direction should be carried through without delay, as shippers will not be inclined to import goods to anything like the same extent they would do otherwise.’

*From Messrs. Spear Brothers & Clark, Ltd., Bristol, dated January 19, 1910.*

‘With reference to report on Canadian cheese shipped to us this season; the quality on the whole we think has been up to the usual standard. We have occasionally found in some lots one or two cheese that have been quite different from the rest. They appear to have no quality whatever in them. They cut hard and dry and we have come across a few cheese with large spots of white curd in them and in one or two cases have been obliged to make rather heavy allowances.

‘The condition of boxes is about the same as usual. There is certainly room for great improvement in this particular.

‘The average losses continue to be much heavier than we think they should be. This is a matter that should be gone into very closely by all the shippers on the other side. The heavy loss takes away, in many cases, the whole of the profit.

‘We should like more Brockville cheese to be stamped on the top of the cheese with the Brockville stamp. Several customers like to see this, and it at once gives them the assurance that they are Brockville cheese.

‘The past year again has not been very encouraging to us on this side of the water, and it appears to us that year by year we are paying much too high prices for the summer made goods.

‘The New Zealands now are a very important feature in the cheese trade, and as far as we can see will be more so year by year, and there is a greater need than ever that the Canadian cheese should be of the very finest quality in every way.’

*From Messrs. James Leggat & Co., Glasgow, dated January 8, 1910.*

‘The Canadian cheese trade has been pretty much a repeat of last few years. The quality continues much about the same and the price this year has varied very little during the whole season.

‘We would prefer that cheese should be made from 75 to 84 pounds, and not more than 84 pounds in any case; and that the boxes should be made stronger as many of them reach us badly broken.

‘Cheese makers should be more particular in weighing cheese, as we have sometimes to complain of shortweights and also of irregular weights.’

*From Messrs. W. & M. Gilmour, Glasgow, dated January 12, 1910.*

‘We have imported a slightly larger number of Canadian cheese this season and on the whole, speaking generally, the quality and condition was equal to former seasons’ make. There is one tendency, however, which we would strongly ask your cheese makers to guard against, and that is the fault of over-acidity. This class of



## SESSIONAL PAPER No. 15a

cheese is not wanted in our market and unfortunately we frequently find a few cheese even among our best lots with this fault, and wherever it is found it spoils the even quality of the lot. It would be far better that these cheese (usually one or two days' make) should be laid aside at the factory and disposed of to best advantage; it would certainly improve the balance by doing so and give the buyers here a better impression of the superior quality of Canadian cheese.

'We would also suggest for our district a softer texture, more like the make of our best Scotch cheese. This remark is really only applicable to the early summer make, as we find the late Augusts and September, as a rule, suitable for our market.

'We have still occasion to grumble at the tightness of the boxes that are used, and while this complaint has been considerably lessened, there are still the odd lots that cause considerable trouble, and when re-weighing is necessary the boxes have to be broken before the cheese can be taken from them. There is also a slight tendency to slimness in some cases, causing the boxes to give way in handling, but we believe the object to be gained here in the saving of wood which, we are led to believe, is becoming a scarce commodity even in Canada.'

*From Messrs. Herbertson & Hamilton, Glasgow, dated January 13, 1910.*

'The past season has not been a favourable one to importers in the Canadian cheese trade, prices having been uniformly too high compared with those ruling for home produce.

'The condition of both the cheese and boxes on arrival here has been satisfactory, and shows that proper care has been taken in handling during transit.

'We have, however, had some complaints of quality, the most serious being regarding the keeping properties of the June make. In many cases, these cheese showed a tendency to mite badly, and go damp both on top and bottom. This is not an isolated experience, and has caused loss not only in Glasgow, but shipments both to Leith and Hull have developed similar faults.

'In the summer made goods, we had complaints of openness of texture and brittleness in cutting, and the September and October makes in not a few cases showed a pastiness and lack of flavour which compared unfavourably with the previous season's make. Possibly climatic conditions in Canada had something to do with the irregularities we complain of, but we are afraid that at least in some cases, the blame must be laid on the shoulders of the factorymen. The keen competition for patronage, and the effort to take as large a quantity of cheese as possible out of a given amount of milk have, we are afraid, in some cases at least, tempted makers to put quantity before quality.

'We are pleased to urge very strongly that every cheese should be legibly dated when made, and until this is done the business will never be on a satisfactory footing.

'This past season, dealers who do only a legitimate week to week trade, have been very considerably handicapped by speculators selling in April and May, June-made cheese for July shipment; and again in July selling September-made for October shipment, at prices shillings below what legitimate traders could possibly offer at. The result has been seriously to interfere with business, and while we are not in a position to absolutely prove the statement, we have not the slightest doubt that many of the cheese shipped on those speculative contracts were neither Junes nor Septembers. If each cheese was correctly and legibly dated when made, this illegitimate system of business would be rendered so dangerous that the game would not be worth the candle.

'This matter closely concerns the factorymen and farmers, because if the firms on this side who take the weekly output of factories at market prices are to be brought into regular and long continued losses through the speculative manipulation of the market, it is clear that the trade will ultimately fall into the hands of the speculative interests, and the makers in Canada will be placed at a very serious disadvantage in consequence.'



1 GEORGE V., A. 1911

*From Messrs. Jas. Davidson & Co., Glasgow, dated January 19, 1910.*

'This season we have handled several thousand boxes of cheese, mostly of the highest grade, and we can with pleasure say that they have given us the utmost satisfaction. Colour, texture and flavour have been uniformly good, while we think the keeping qualities show much improvement on many former years. We have not observed so much slackness in the texture this season and open and perforated cheese we have not seen. The only objectionable features which we might refer to, and which are easily preventable, are the greenness of the cheese when delivered to us. Obviously this is entirely in the factorymen's hands and can quite easily be remedied by their retention on the shelves of the factory for a few weeks longer. The other point is the frequent wretched condition of the boxes. It is no exaggeration to say that 30 to 50 per cent of the boxes are badly broken and tied up with ropes, presenting a very ragged and broken-down appearance which greatly detracts from their value. We think most of this could easily be avoided if greater care was exercised in transit.'

*From Messrs. Mitchell & Smith, Dundee, dated March 7, 1910.*

'In regard to cheese, the quality this year has been fairly regular, but we have the old difficulty of broken boxes. These boxes have been becoming thinner and thinner, until now it is a common thing to have close on 25 per cent of the boxes broken in transit. This, of course, has arisen from the desire of the factorymen to get their boxes as cheaply as possible, and this has forced the box makers to thin them down until they are really not fit to stand the journey.'

### THE EXPORT OF FRUIT TRADE.

The following table shows the quantity and value of apples exported annually from this country for the past seven years:

Year ended March 31st.	Barrels.	Value.
		\$
1904.....	1,577,285	4,529,500
1905.....	997,488	2,551,474
1906.....	1,280,789	4,217,704
1907.....	998,618	2,702,623
1908.....	1,629,400	4,823,645
1909.....	1,092,090	2,804,282
1910.....	1,604,477	4,417,926

It will be noted that the quantity of apples exported during the past year was the second largest on record, although a big crop was not expected. Such an unlooked for volume of export trade would be a very proper matter for gratification were it not for the fact that the country would have gained in every way if one-third of the apples exported had never been shipped, but had been kept at home and sent to the evaporators, cider mills, &c. It is generally recognized by those who have the best interests of the trade at heart that not one barrel of No. 3 grade apples should be sent abroad, yet in the season of 1909-10 thousands of barrels of this grade were shipped from Ontario and Nova Scotia to Great Britain, flooding the markets and reducing the price paid for good apples, and worst of all lessening the consumption of apples by turning the people to bananas, oranges and other fruits. Sales catalogues received by this office from brokers in the Old Country shows sales of No. 3's at from five to eight shillings per barrel, the average of which is just about the cost of the barrel



## SESSIONAL PAPER No. 15a

plus transportation and delivery charges, commission, &c. If this truck had not been shipped there would have been a splendid market in Great Britain all season with an active demand and good prices. Instead the market went to pieces towards the end of the Montreal shipping season, due to heavy shipments of low grade stock, and it was the middle of January before it recovered. Shipments continued large with a considerable proportion either of poor grade or out of condition, and as a result the market was more or less uncertain until the end of the season. It is generally agreed that the quality of Canadian Spies was not up to the standard of former years and there was, therefore, more waste than usual in shipments of this variety.

## SHIPMENTS OF APPLES FROM THE PORTS OF MONTREAL, HALIFAX, ST. JOHN, &amp;C., SEASON OF 1909-10.

From Montreal to—	Barrels.	Boxes.
Glasgow.....	239,539	27,659
Liverpool.....	183,731	1,726
Manchester.....	75,622	2,390
London.....	21,443	166
Bristol.....	15,920	246
Aberdeen.....	3,116	383
South Africa.....	967	320
Antwerp.....	46	.....
Leith.....	2,069	.....
Havre.....	23	20
Hull.....	1,345	.....
Hamburg.....	15	.....
Rotterdam.....	11	2
Total.....	543,847	32,912

Of the foregoing 5,138 barrels and 3,304 boxes were carried in cold storage. 2,447 barrels in cooled air and the balance in ordinary storage.

From Halifax to —	Barrels.	Half-barrels.	Boxes
London.....	433,639	519	3,493
Liverpool.....	169,341	38	370
Glasgow.....	38,409	67	189
Newfoundland.....	14,597	4	3
West Indies.....	4,878	.....	.....
South Africa.....	2,322	.....	830
Total.....	663,186	628	4,885

19,053 barrels and 830 boxes were carried in cold storage; the balance in ordinary storage.

In addition to the above Halifax exports there were shipped from other Nova Scotian ports the following:

From Yarmouth to Boston.....	5,993 barrels.
“ Annapolis to London.....	37,000 “
“ Granville to London.....	3,000 “
Total.....	45,993 “



1 GEORGE V., A. 1911

Estimating the local sales at 135,000 barrels brings the total sales of Nova Scotian apples, crop of 1909, to the record breaking total of 834,179 barrels, 628 half barrels and 4,885 boxes.

From St. John to —	Barrels.	Boxes.
Liverpool.....	26,999	3,461
London.....	20,760	.....
Glasgow.....	16,415	1,095
Manchester.....	4,595	400
Bristol.....	1,681	.....
Total.....	69,950	4,951

The above figures include 3,510 barrels and 1,300 boxes which were carried in cold storage.

BROKERS' CHARGES ON CANADIAN FRUIT.

I have felt for some time that the fixed charges of brokers in Great Britain on boxed fruit in general and pears in particular are too high, and I have endeavoured during the past year to secure a reduction in these charges in the Glasgow market. After considerable correspondence our inspector wrote on March 18 that the leading brokers had agreed to a reduction of two pence on cases and one penny on half cases of pears, making the charge for landing, delivering, &c., four pence and three pence respectively. Of course, the broker's commission remains at the rate of 5 per cent. No change was made in the charge on boxed apples, which was left at sixpence.

During the past two years a considerable number of account sales received by Canadian apple shippers from consignees in Great Britain have passed through my hands, and I find that the fixed charges, apart from commission, on apples in barrels, run about as follows:—

In Glasgow, 18 to 22c. per barrel; in Edinburgh, 20c. to 28c. per barrel; in Liverpool, 20c. to 24c. per barrel; in Manchester, 24c. per barrel; in London, 22c. to 28c. per barrel.

This charge is levied to meet the cost of landing, delivering, dock and harbour dues, portorage, &c., but it is alleged that the sum expended per barrel is less than that charged by the broker, so that, if this is the case, he has a nice little profit on every barrel he handles, in addition to his commission of 5 per cent. The worst feature of a scheme of this kind is not so much the actual toll taken from the shipper as the fact that the broker, because of the rake-off on these charges, is not inclined to discourage the shipping by his agents or by those to whom he has advanced money, of No. 3's and culls, which are such a detriment to the Canadian apple trade.

LETTERS FROM FRUIT BROKERS AND MERCHANTS.

*From Messrs. James Lindsay & Son, Ltd., Edinburgh, dated January 10, 1910.*

‘*Re our experience in the apple trade this season so far as it has gone:—*

‘*In the beginning of the season summer apples commenced fairly well and the packing was fairly correct, realizing fairly satisfactory prices for every one concerned.*

‘*Winter apples.—First shipments of these were fairly good and continued to come good for a certain time, and prices went gradually higher. So soon as shippers found out that prices were gradually going better they commenced to ship any sort of quality. Apparently they had thought that buyers here would give prices for anything, no matter what it was like, but they were very soon disillusionized in these opinions, as, whenever such quality landed in this market prices began to drop at*



## SESSIONAL PAPER No. 15a

once and as heavy shipments of a similar grade continued to come forward, prices went off altogether; indeed the goods became almost unsaleable. Many parcels were horribly packed and were of most wretched quality, and not only did such faulty packing exist, but goods were most incorrectly branded, which showed gross carelessness on packers' part.

'Had the packers continued putting up honest quality of fruit and been careful as to branding, not only the quality but the name of the sort, and also branding on the proper end of the barrel, we are of opinion that prices would have continued satisfactory throughout the season, but it is utterly impossible for buyers to go on purchasing goods that they find are entirely different from what they expected, so that packers have no others to blame for the bad prices but themselves, and under such circumstances packers cannot expect any other results but what have taken place here now.

'When they adopt similar principles again the same thing will happen, so that the only way to avoid it is to pack right and brand the goods accordingly.

'Many of the latest shipments coming forward have also been badly frozen previous to being packed, and the bulk of the worst frozen apples are found in the bottoms of the barrels, down about the quarter hoops. That is where the worst frozen apples have been placed. Understand the freezing did not take place after they were packed in the barrels. It was previous to packing, because, the damaged apples are right where we describe, between the centre and the quarter hoops, at the bottom end, and are even mixed with good sound apples amongst them. Now, freezing after packing freezes all the apples outwards first, and there are none missed. They are not part frozen and part unfrozen. They are all frozen when frozen in the barrel.

'It would pay packers not to put those in the barrel at all, as they give way before they land here and the consequences are the goods land slack, and the buyers lose them unless they can sell them off at once, and even then they give no satisfaction to those who purchase them for consumption.

*From Messrs. Thompson & Mathieson, Glasgow, dated January 15, 1910.*

'In reviewing the Canadian apple season our experience in the early part was altogether satisfactory. We do not remember ever having handled finer or better packed apples. These met with a ready sale, at good prices. A change, however, set in about the first week in December. Canadian apples in some lots showed signs of being more or less frozen. There was also a marked difference in the quality; the fruit appeared to have lost, in some measure, its early freshness, an undue proportion of apples at this time arriving of a secondary quality, No. 2 apples largely predominating. Under these conditions prices broke away and came to a low level, and speculators who were much involved lost heavily.

'There was apparent this season something of a difference in the normal varieties of apples coming from Canada. We had this year an unusually large supply of Northern Spy apples, and a marked shortage of first class Baldwins, Kings and Greenings, these varieties being very favourite sorts with consumers here. At the time of writing this we find a much stronger demand for apples, owing to our market being at last cleared of secondary fruit, and it is likely that high class apples will do very well for the remaining portion of this season, providing the forthcoming supplies are moderate in quantity.

'Pears.—Our experience this season with Canadian pears was quite the opposite from apples, the early arrivals of "Bartletts" coming unfortunately out of condition and losing money. Later, however, "Duchess" and "Beurre d'Anjou" pears came sound and good, and sold well and profitably, the 20-lb. package selling best.

'During the past year general trade has not been good in Scotland, but appearances at present go to show that after a term of depression signs are not wanting that we are on the threshold of more prosperous times, and with the election over, that



1 GEORGE V., A. 1911

trade will settle down and 'we shall have more money amongst our apple consumers next season. When we consider the very large quantity of Canadian apples that came to Glasgow during this season, and the manner in which our market absorbed the large supply, we cannot but think it augurs well for the future of the apple business in our city.'

*From Messrs. James Davidson & Co., Glasgow, dated January 19, 1910.*

'Apples.—We regret to report that this season has been one of the most unpleasant and full of trouble and anxiety that we have experienced within the last few years. No doubt the trouble in the early part of the season was due to natural causes, such as fruit giving way during transit and arriving faulty and wastey, but the most serious annoyance and one which is cutting very deep into the reputation of Canadian shippers is the persistence of unfair and dishonest grading. Quite a large proportion of the apples received this season were deliberately topped and branded No. 1—fruit when, as a matter of fact, they were very poor No. 2 grade. We cannot speak too strongly against this most reprehensible and manifestly unfair practice, and would strongly urge your department to take some drastic means to severely punish packers found guilty of such dishonest methods.

'This grievance has become so common that we have scarcely a customer now who will buy apples on the strength of grade mark; they all insist on seeing them turned out. If Canadian packers were alive to their own interests they would so grade and pack their apples that a buyer here on being offered No. 1 grade could with confidence buy it as such, and until the Canadian packer realizes this he will stand to lose not only money, but both his honour and his business in this country.'

*From Messrs. Mitchell & Smith, Dundee, dated March 7, 1910.*

'Our experience of Canadian apples this year is that the trade is again becoming an unsatisfactory one owing to the fact that large shippers are becoming quite careless of the reputation of their brands. They are sending thousands of barrels during the season, and while some of their lots are good, others are just as bad, so that the brand and the shipper's mark is now no criterion of how they will be packed. This seems to us to arise from the fact that these large shippers are operating in different districts, and consequently packing different grades under the same mark. We think that the actual locality where the apples are grown ought to be branded on the barrels in addition to the shipper's name, as this would afford some guide as to the probable quality of the fruit.'

*From Mr. T. J. Poupart, London, dated January 7, 1910.*

'In reply to your letter of December 30, I beg to inform you that in my opinion the Fruit Marks Act has been very beneficial to the trade, and I certainly think that the supervision of the unloading of apples by an independent government official is to the advantage of both the shipper and salesman, as undoubtedly until the supervision of unloading was instituted some of the fruit was very badly handled at this end.'

*From Messrs. Edward H. Lewis & Son, London, dated January 3, 1910.*

'As regards the results of the interest taken by the Canadian Department of Agriculture to secure the safe carriage of goods, it has been of distinct advantage to all traders, whether senders on the other side or receivers here, and whether shipped on consignment or bought. My reasons for saying this are as follows: One has a government official, absolutely unbiassed, to whom the goods can be shown should there be any dissatisfaction in their arrival here, and their condition is often known to him before the merchant sees the goods, as generally the inspector has been at the dock and noted anything that may be wrong with the ship, such as goods spoilt by varying temperatures, &c.: further than this, it greatly assists people anxious to do business on a



## SESSIONAL PAPER No. 15a

sound and fair basis as between shippers and receivers, because we know that your Act of Parliament compels apple shippers to properly pack and grade their goods (and a most useful act too) and I personally know also that the fruit inspectors on the other side are constantly up and down the country looking for offenders against this law, as well as examining the fruit at Montreal before shipment. Of course, some may escape the vigilance of these inspectors, but even when the goods arrive here we can obtain, as it were, government evidence of their condition before they leave the dock or wharf, so that it creates, and will further create business with Canada as long as this law is enforced and fines inflicted. The combination of the Act and the inspection on your side and the supervision by the Canadian government representatives here, creates a certain confidence that your department is doing its best to encourage satisfactory business between the two parties, and I for one am very glad you have taken up this course, and we hope you will never depart from it, for if so we would be doing very little business with Canada. If we may offer a suggestion, it is that the fines for false packing are not nearly heavy enough.'

*From Manchester Fruit Brokers, Ltd., Manchester, dated February 15, 1910.*

'With regard to this season's 1909-10 Canadian apple trade our opinion can, we are sorry to say, be stated in a very few words. It has been a most unsatisfactory and disappointing season. The quantities were underestimated, the quality was overestimated, and the grading, especially as far as we are concerned, has been very poor.'

## REPORTS OF CARGO INSPECTORS IN GREAT BRITAIN.

Following are the annual reports of the cargo inspectors employed under the direction of this branch at Liverpool, Manchester, London, Glasgow and Bristol.

## REPORT OF THE CHIEF CARGO INSPECTOR FOR GREAT BRITAIN. (MR. A. W. GRINDLEY).

LIVERPOOL, March 31, 1910.

I have the honour to submit my report as Chief Cargo Inspector for Great Britain for the year ending March 31, 1910.

The work of the cargo inspectors stationed at the ports of Liverpool, London, Glasgow and Bristol has been carried on in a most satisfactory manner. The inspectors have furnished complete reports respecting the condition in which each cargo was landed; they have interviewed from time to time the importers of the various Canadian food products on matters affecting the trade, and during the apple season have attended as many of the sales as possible.

## REPUTATION OF CANADIAN APPLES, SEASON 1909-1910.

Owing to the bulk of Canadian apples being under normal size, due to climatic causes, a large percentage of the Canadian apples have come forward stencilled No. 1 while the contents of the barrels were really No. 2, and in some cases No. 3. During the season numerous specific instances of false marking have been sent to Ottawa by the cargo inspectors and myself. It is some consolation for losses sustained by members of the fruit trade in Great Britain to see the energetic manner in which the Canadian Department of Agriculture is following up the guilty parties; and they highly approve the department's policy of publishing the names of all persons guilty of dishonest practices in the official bulletins and press, which names have been freely distributed amongst members of the fruit trade in Great Britain. As a result we find a decided improvement in the grading of Canadian apples towards the close of the season.



1 GEORGE V., A. 1911

## BACON.

In the twelve months of 1907 Canada exported to Great Britain 873,340 hundredweights of bacon, valued at £2,414,645.

In the twelve months of 1909 Canada exported to Great Britain 443,386 hundredweights of bacon, valued at £1,361,357. This great falling off may be partly due to an increase in home consumption, but there is a world's shortage which has been more especially marked in the United Kingdom, but is also very noticeable in the United States, Denmark and Canada, these being the principal bacon-curing countries in the world.

At the present time the British markets are supplied by the following classes of bacon: English, Irish, Canadian, American, Danish, Dutch, Swedish, Russian, Siberian, Mexican and Chinese.

The demand for Canadian bacon is now well established and it is a strong competitor with 'Irish,' 'Danish,' and other popular brands.

For the year 1909 the United Kingdom sent abroad £13,801,665 for bacon.

## BUTTER.

The British importations of Canadian butter for the twelve months of 1909, were 22,512 hundredweights, compared with 43,084 hundredweights for 1908, a marked shrinkage, no doubt chiefly due to largely increased home consumption, and to a minor extent to the shipments of cream made to the United States.

The quality of Canadian butter is spoken well of by the trade, but Canadian butter-makers will be well advised to keep the percentage of water as low as possible, as the British authorities are continually drawing samples for analysis, one case having been reported by the British Board of Agriculture to the Canadian High Commissioner at London, as having over the legal 16 per cent of water.

## CHEESE.

While Canadian cheese has on the whole been steadily improving, there are still numerous complaints, which when traced back are generally found to be due to the use of inferior materials or to carelessness or foolishness, or something worse, on the part of a few of the cheesemakers. During the past year I have received the following complaints:—

*Defective Quality of Cotton* used for bandaging cheese, which would not strip off, but had to be scraped off. Most of the retail grocers now use patent cheese cutters, and the wrappings have to be removed before the cheese can be cut. This defect was taken up by 'The Federation of Grocers' Associations' and reported to the Canadian High Commissioner, London.

*Wrappings too heavy.*—Several complaints. Three or four thicknesses of cotton have been wrapped around the cheese, which means a loss of weight to the retailer when the cheese are stripped.

*Wrong Marking of Weights.*—Complaints very numerous. Cheeses have been over-marked as high as eight to twelve pounds per cheese. It gives satisfaction to the importers to know that the Dairy Commissioner has spoken so plainly to the dairymen of Canada on such a grave matter. Unless Canadians give true weights with a fair allowance for shrinkage, especially in connection with cheese shipped green, the British importers will soon find some method of solving the problem at the cost of the Canadian producers and exporters.

*Cheese Shipped too Green.*—Not so many complaints as in other years.

*Cheese Cut and Pilfered.*—Several complaints. In every case reported the cuts have been green and mouldy, showing that the damage was likely done before the cheese were shipped from Canada.



## SESSIONAL PAPER No. 15a

*No Marks on Boxes.*—Numerous complaints. As there are no marks of identification on the boxes when landed, they often are left on the hands of the shipping company concerned, which has to dispose of the cheese as best it can.

*Badly Fitting Boxes.*—Which result in broken boxes and often damaged cheese.

*Poor Quality Wood* used for making boxes, which results in a very high percentage of broken boxes.

## POULTRY AND EGGS.

As far as Canada is concerned, the shipments of poultry and eggs have reached the vanishing point. A few turkeys arrived at Christmas time, which were inferior in quality to those received a few years ago.

As regards eggs, the United Kingdom for the twelve months of 1909 imported 17,710,441 long hundreds, valued at £7,235,302.

The quantity received from Canada only amounted to 3,984 long hundreds, valued at £2,182.

I take this opportunity of thanking the members of the fruit and provision trades in Great Britain, and also the officials belonging to the different shipping companies in the Canadian service, for the courtesy extended to the representatives in Great Britain of the Canadian Department of Agriculture.

Attached please find annual reports from:—

Mr. Wm. Carter, cargo inspector for ports of Liverpool and Manchester.

Mr. Thomas E. Davis, cargo inspector for port of London.

Mr. Jas. A. Findlay, cargo inspector for port of Glasgow.

Captain H. E. Shallis, cargo inspector for port of Bristol.

## REPORT OF THE LIVERPOOL AND MANCHESTER CARGO INSPECTOR (MR. W. CARTER).

LIVERPOOL, March 31, 1910.

I herewith beg to submit the following report for the season of 1909-10:—

With the exception of frozen meats, shipments of Canadian agricultural produce have fallen off. Consignments of butter and eggs practically ceased, while at one period supplies of bacon were very short.

## CHEESE.

The general condition of cheese landed here was far from satisfactory. There was far too large a percentage of broken and tied boxes among them. Many of these were broken before landing and had evidently been put on board in that condition. The chief cause of this is the poor quality of the boxes, and until shippers use sounder and stronger boxes, this breakage will occur. Besides breakage, there is serious risk of cut and damaged cheese when packed in frail boxes. There have not been any serious complaints *re* heated cheese, only a few lots showing sweated.

## BUTTER.

There has been a great falling off in shipments of butter during the past season, only a few small consignments arriving here. All these landed in excellent order and condition.

## EGGS.

There were only a few small consignments of eggs this season, and these also arrived in good condition.

## FROZEN MEATS.

There has been an increase in shipments of frozen meats this season, and while the meats have been in excellent condition, the packages have landed in very poor



1 GEORGE V., A. 1911

order. The cases have been far too frail and light for the weights placed in them, and in consequence many of them have landed broken. Shippers of frozen meats should note that all shipments arriving here now undergo a very searching and strict examination for any signs of disease or putrefaction.

## BACON.

In the early part of the season shipments of bacon fell considerably, but latterly have been up to the average. With very few exceptions, bacon has landed in good order. The only time bacon boxes have been seriously damaged was when they were being hauled out of the door of a refrigerator chamber, and on calling the attention of the stevedore to this the matter was immediately remedied.

## APPLES.

The present apple season has not been at all satisfactory. After early apples showing distinctly good quality, it was disappointing to find the winter varieties showing poor for quite a considerable period. Not only were many of the apples of poor quality, but a large percentage of them were over-graded. Many parcels of fruit that were branded No. 1 were hardly No. 2 quality, and many No. 2's were really No. 3 fruit. This applies to both Ontario and Nova Scotian shipments. There were many comments of the grading of apples by members of the fruit trade in the Liverpool saleroom, and the general opinion is that the Fruit Marks Act is not carried out strictly enough, and that the penalties imposed are not heavy enough.

Apart from quality, we have had a lot of more or less frozen apples this season. Since Christmas most consignments have shown more or less frost in them, and some of the last cargoes were badly frozen.

There has been no cause for complaint *re* package, nothing but good, strong barrels having been used.

There have been some complaints *re* the branding of the varieties such as R. Pippin and B. Pippin. These have been bought as Ribston or Blenheim Pippins, and on being opened were found to be Red Pippins or Blush Pippins or some other variety. I would suggest that the two former varieties should be branded as 'Ribston' and 'Blenheim,' leaving off the word Pippin. I would also suggest that packers of Nova Scotian apples should use flat hoops on their barrels instead of the present style of round ones. Flat hoops make these barrels look larger and altogether more neat.

There has been an increase in the shipments of canned apples, and all these arrived in good order and condition.

## POULTRY.

There was only one small consignment of Christmas poultry and this landed in excellent condition.

## THERMOGRAPHS.

These instruments were carried in nearly all ships during warm weather, and continue to give every satisfaction by the accuracy of their records.

The steamship companies are still doing all they can to improve the carrying conditions for agricultural produce, and I here wish to thank all their officials for the courtesy and assistance shown me during last year.



SESSIONAL PAPER No. 15a

REPORT OF THE LONDON CARGO INSPECTOR. (MR. THOS. E. DAVIS).

LONDON, March 31, 1910.

Herewith I beg to present my annual report for the year ending March 31, 1910.

## SUMMARY OF WORK.

From the commencement of the Montreal season, May 22, 1909, to February 19, 1910, one hundred and fifteen (115) vessels have landed goods at this port, the perishables being as follows:—

From Montreal direct: 759,877 boxes of cheese, 7,084 packages of butter, 12,247 cases of bacon, 24,669 packages of apples and 1,152 cases of tender fruit, in the form of pears, peaches, &c.

Between September 19, 1909, and February 19, 1910, the imports from Nova Scotia were 214,527 packages of apples and 8,501 cheese, whilst the Canadian products which entered via St. John, N.B., Portland, Boston and New York were 48,995 boxes of cheese, 3,833 cases of bacon, 491 packages of butter and 56,860 packages of apples; the total number coming under my supervision being 1,138,236 packages.

## INQUIRIES.

During the period under review I have made separate reports on the out-turn of freight from each steamer as shown in the foregoing synopsis, and in following the consignments within a reasonable area, it has been my duty to make individual calls on widely distributed consignees, the subjects dealing directly with the respective commodities landed. In addition, I have visited markets in order to obtain first hand quotations during auction sales.

## CHEESE.

From personal observation coupled with the opinion of the leading London merchants, I am glad to say that heated cheese caused by bad ventilation is a thing of the past. During the season the very few signs of heated cheese showing were undoubtedly accounted for by the immature state in which the cheese was shipped. The instances of mixed curd reported prior to the passing of Clause 238a of the Inspection and Sale Act, have not been repeated.

## CHEESE BOXES.

I have little to say on this heading but that which has been repeatedly discussed, beyond the fact that the breakage of *perfectly fitting* boxes is now at a minimum, especially those shipped from the port of Montreal.

## BACON.

The condition and carriage of this class of goods are satisfactorily maintained.

## BUTTER.

Of the few packages forwarded I can report most favourably. They gave the greatest satisfaction both as to quality and condition.

## THERMOGRAPHS.

One hundred and twenty-one temperature charts were removed from instruments placed with freights; the records being mailed direct to Ottawa.

## NOVA SCOTIAN APPLES.

In recent years the initial variety, Gravenstein, does not arrive in the same condition as the hardy Ribston variety, and though certainly a pretty fruit, it is heavily handicapped in being marketed at the height of the English fruit season.



1 GEORGE V., A. 1911

## PACKAGES.

The barrel is in favour as a wholesale package, but the adoption of boxes for first class varieties would, I am confident, materially benefit the grower. Anyway, this much is certain, that by boxing the apples plunder would be more easily detected than it can be now, when occasionally one has to deal with badly packed barrels.

## FRUIT MARKS ACT.

I must put on record that the London and Provincial Fruit Buyers' Association much appreciate the action of the Canadian Department of Agriculture in regard to contraventions of the above Act.

## THE MARKETING OF FRUIT.

After the continued efforts that have been made by the Canadian government to secure for Canadian fruit a high character on the English market, it seems to me to be very disappointing that, from time to time, apples of the best quality and in the finest condition are sacrificed at entirely unremunerative prices. Now, this is solely on account of an entire disregard of the relations between supply and demand. In December, 1908, and again during January of the present year, one witnessed a sudden and unexpected collapse of the London Auction Mart, involving not only a loss to shippers on fruit which had actually come forward, but also a reduction in the salesmen's commission. Moreover, such conditions curtail the prospect of further imports at a time when steamers are running regularly and when substantial fruit shipments are expected.

I do not presume to suggest what methods, if any, should be adopted with a view to an improvement in this connection, but it does seem to me that the necessary regulation for better distribution of the produce could be better handled by some authority independent of the parties engaged in the trade, than by any particular firm. Obviously ports like London have throughout the winter season a steady demand for fresh apples. The extent, I think, could be readily gauged on the basis of the minimum prices, and shipments could be sent forward accordingly. If some such scheme could be carried out it is more than probable that over the whole season the same quantity of fruit would pass through the markets on this side at a lighter average price, which, naturally, would be to the advantage of all concerned. This question is, I admit, a complex one, affected as it is to a large extent by arrivals from other districts, but I venture to suggest that it is worthy of some consideration. It should be borne in mind that Ontarian and Nova Scotian apples, even of No. 2 grade, are seldom sold to the consumer at less than 4 cents per pound even by the costermonger. That represents \$5.52 per barrel and, of course, the higher and better qualities realize a much larger figure. After allowing for wastage and the various salesmen's profits, it will be noted that prices ranging between 5 shillings (\$1.20) and 10 shillings (2.40) per barrel for the lower grades and 8 shillings (\$1.92) and 14 shillings (\$3.36) for the higher grades do not fairly represent the value of the fruit if the current state of the market is studied.

## SHIPPING COMPANIES.

During January the department's status in respect to cargo inspection was widely acknowledged by the shipping companies and leading merchants, and authoritative letters signed by the principals were sent to the Chief of the Markets Division at Ottawa.

## ACKNOWLEDGMENTS.

The courtesy and help received in former years from shipping companies and merchants continue, for which I return thanks.





C. E. CHADWICK.

The late C. E. Chadwick of Ingersoll, Ont., though never actively engaged in dairying, was, during many years of his life, one of its most ardent supporters. He was a strong advocate of the adoption of the factory system and his facile pen and eloquent voice were both effectively employed with that end in view. Mr. Chadwick was one of the prime movers in the organization of the Canadian Dairymen's Association at Ingersoll in 1867 and was elected its first President. He afterwards served as Treasurer and as Secretary for many years. Mr. Chadwick was one of the pioneers who should not be forgotten by the dairymen.



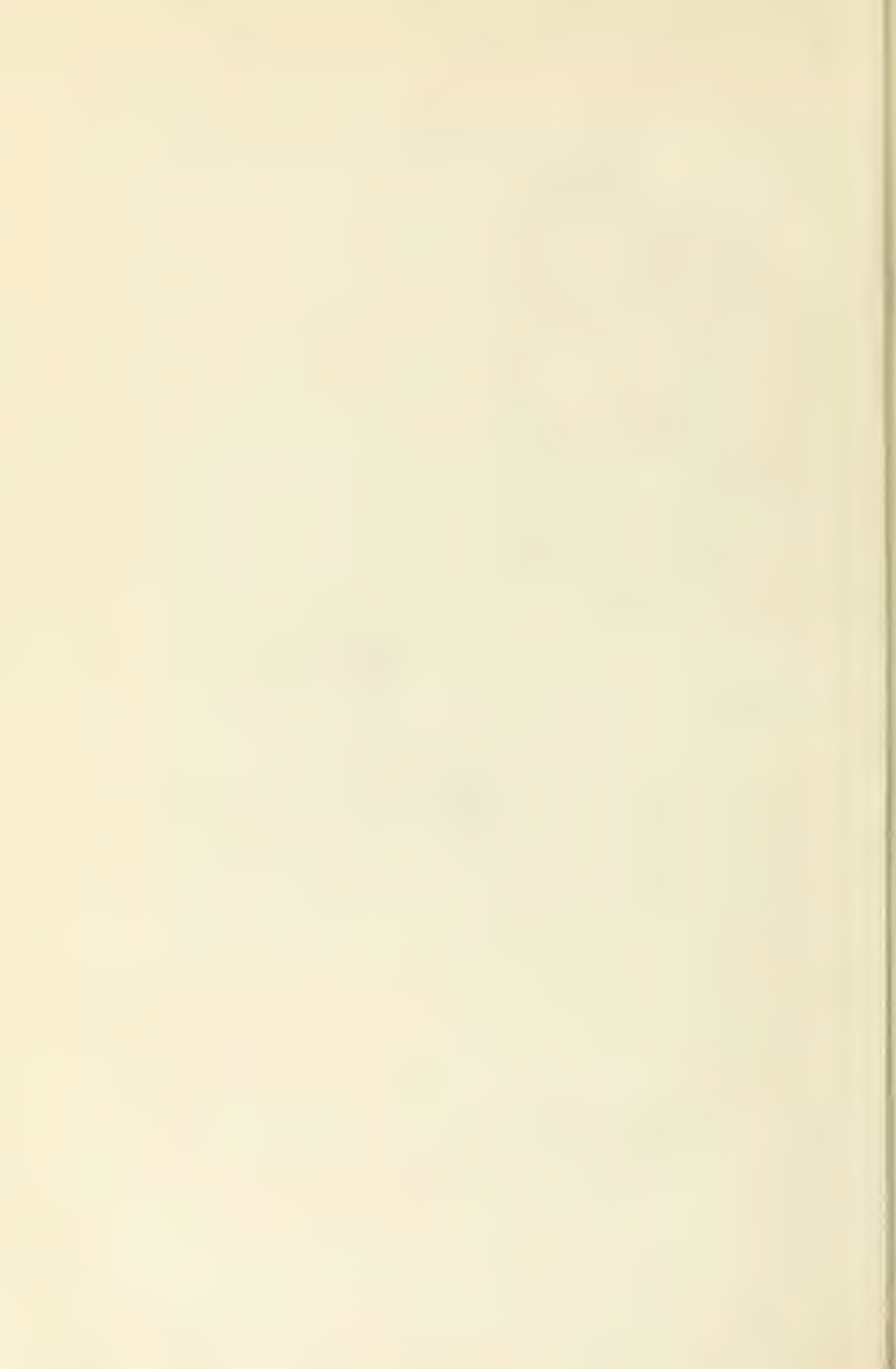




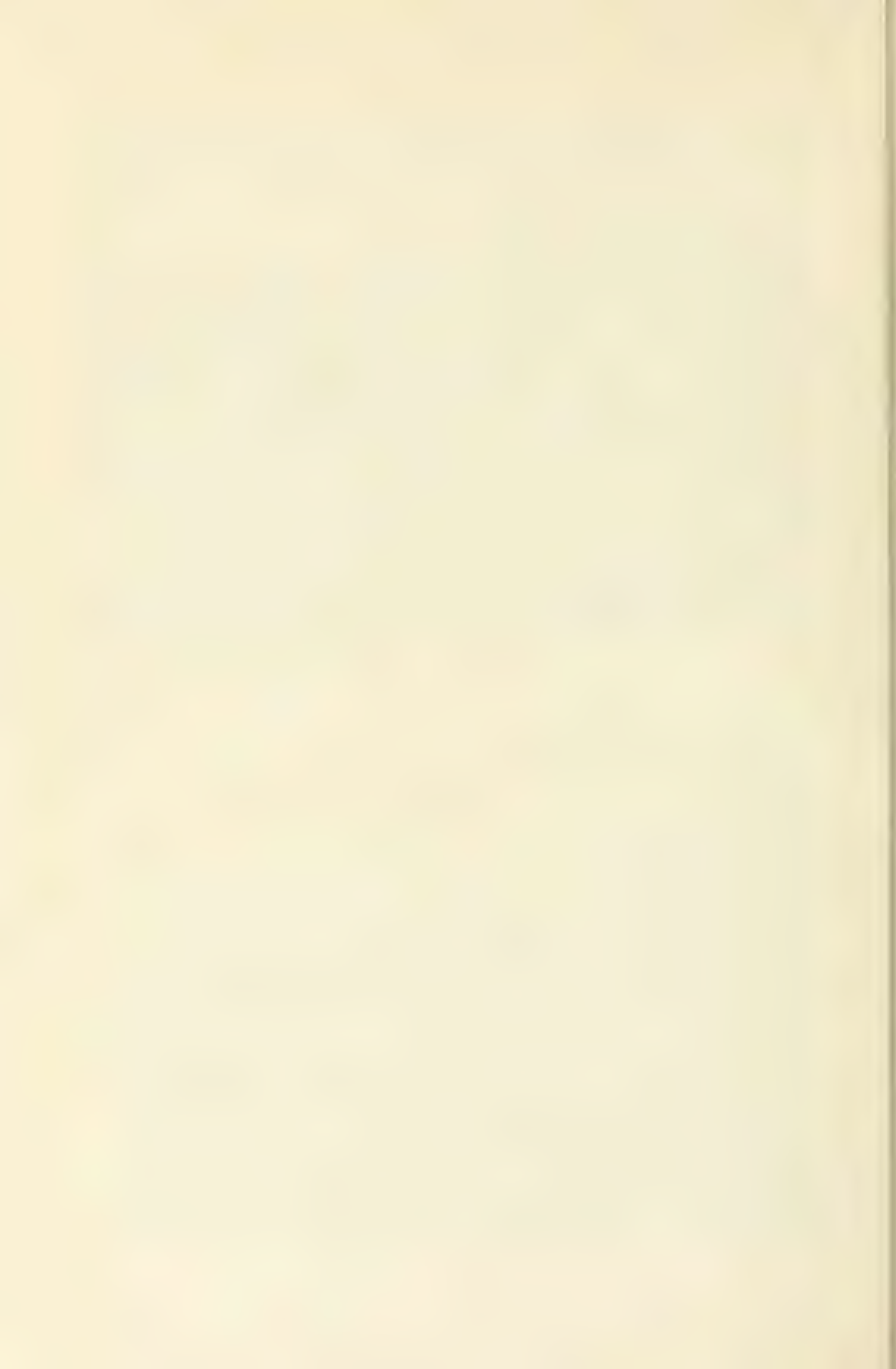


Fig. 1. — Prairie Valley, Summerland, B. C.



Fig. 2.—An Irrigated Orchard, Summerland, B. C.







SESSIONAL PAPER No. 15a

REPORT OF THE GLASGOW CARGO INSPECTOR (MR. JAS. A. FINDLAY.)

GLASGOW, March 31, 1910.

The past year's trade in agricultural produce with this port shows large increases in cheese, apples and frozen meats and a small one in canned apples; but decreases are noted in hog products, canned meats and butter, compared with last season, while egg imports have entirely disappeared. No untoward incidents marred the regular arrival of steamers this year, and while no improvements in methods of discharging steamers have to be reported, it gives me much pleasure to place on record the evident desire of the shipping companies to handle Canadian produce with great care, and the never-failing courtesy extended to me in pursuance of my duties.

## CHEESE.

The season of Canadian cheese importations to Glasgow for 1909 gives reason for congratulation, as over 25,000 more boxes arrived compared with the season of 1908. The Scotch manufacture was a normal one, but owing to climatic conditions the quality was not so uniformly good as in some years. Owing to bad trade cheese moved off very slowly and difficulty was experienced in Glasgow in securing a profit off Canadian cheese. This dull spell lasted almost to the end of the year, but during the last six weeks the market has been brisk and improved prices have encouraged the shifting of much stock held up for a considerable time. It is thought an increased consumption of cheese has resulted from the high prices ruling for hog products.

*Quality and condition.*—Generally speaking the quality and condition of arrivals have been very satisfactory and quite in line with last season's, no recurrence of the mistaken policy of 1907, of wholesale shipping of green cheese, being in evidence. Yet the season was not without complaints of many parcels reaching here too immature, causing all kinds of trouble to importer through undue shrinkage, complaints from buyers, and allowances to be made to customers, all of which cause interruption to the even working of trade relationships and inevitably reflect on Canadian cheese and the methods of Canadian factorymen. It is evident, therefore, that improvement is still called for in this respect, which, when accomplished, will mark a decided advance in the already high estimation entertained for Canadian cheese in the Glasgow market.

I wish to emphasize this point because the continuance of shipping green cheese in the face of so much having been written and said on the matter for the last few years, betrays a disregard of the opinions of merchants here, who have to bear an undue share of the loss in shrinkage, and this ultimately will tell against the price and demand for Canadian cheese.

Some importers state they have noted an over-acidity of flavour in some arrivals this season, but generally the quality of the cheese meets with favourable comment and 'Choice Canadian' are next to the 'Finest Scotch' makes and preferred to the Scotch second rate manufactures.

*Short weights.*—All Glasgow importers are becoming more and more exasperated over the discrepancy between actual and marked weights, especially as they are not always successful in obtaining allowance for short weight on arrival, which amounts sometimes to as much as four or five pounds, and in several cases this season to ten pounds. It is significant that the error is always a shortage.

*Boxes.*—The condition of the boxes on discharge, I regret to report, shows no improvement in the aggregate. Some factories undoubtedly have made a forward step in using stronger boxes, but no general improvement from past years can be noted, and if anything the percentage of breakage this year was decidedly heavier than last, it being a common feature for factories to show from 30 to 40 per cent of broken and tied boxes. A few parcels averaged considerably higher, due largely to some one or other of the following causes: Slim boxes or brittle wood used in manufacture, too light ends and covers, and the very common complaint of irregular boxes, too wide, too



1 GEORGE V., A. 1911

long, or too tight. The latter feature has been apparent in a few factories of Brockville district throughout the season. One of the worst offenders in this respect was the Oxford Mills Factory, with weekly shipments arriving showing cheese fitted closely to sides of box and from one to two inches over the top of the box; consequently the top of cheese was liable to be damaged from the pressure resting on the cheese and the covers frequently arrived broken or completely gone. Cheese arriving in this state required to have the boxes broken off for weighing purpose, which is a distinct disadvantage in the event of cheese having to be put into the box again for delivery to buyers. There is consequently considerable room for improvement in the boxes, Canadians comparing unfavourably with the New Zealand style of package. Canadians should have heavier and better fitting boxes, as a very bad impression is gained by observing rows of Canadian cheese in the merchants' stores here tied and coopered.

*Handling.*—As far as the handling during discharge from steamers at Glasgow is concerned, I am pleased to report on the evident desire of the shipping companies to handle this and similar produce with care, but I find it necessary to keep constantly in touch with the workers in the holds of steamers and the shed workers during the process of unloading, as, notwithstanding the desire of officials, the casual labourer's desire is to drop his load as expeditiously as possible without due regard for the safety of the package concerned. More care might be exercised by shippers in branding cheese boxes with brands, weights and factory marks, as I frequently observe odd boxes arriving lacking some or all of these marks.

#### BUTTER.

The arrivals to Glasgow for the season are of very small dimensions, again marking a decrease of over 1,000 packages from 1908. Merchants look forward to the time when Canada will be able to ship in larger quantities, but the high price of Canadian butter last year did not permit of it being imported profitably to any large extent.

*Quality and condition.*—The quality of the bulk of arrivals was satisfactory, most of it being choice and highly spoken of by all handling it. Canadian butter has a tendency, however, to rapidly deteriorate and develop a 'fishy' flavour. In my examinations on arrivals I observed a few parcels already off in flavour, which would lead one to believe they had been held for a time before shipment, or else the factorymen were to blame in not exercising proper care in the manufacture or in not refusing overripe milk. I also observed one case of mould on butter and several cases of mould on parchment. All shipments were carried in refrigerators and were landed here at temperatures varying from 15 to 26 degrees, usually round 19 to 22 degrees, one shipment only arriving registering 37 to 38 degrees.

The bulk of shipments were promptly lifted from the docks. Out of the total arrivals of 3,469 boxes, 1,969 were lifted on the day of discharge, 727 the day after, 681 the second day and 92 boxes the third day after. The highest temperature registered on the quay was 48 degrees for a parcel lifted the third day after unloading.

The boxes were discharged in good order, about two-thirds being sacked and little breakage apparent, a few lids only being damaged. I might point out the necessity of all boxes having plainly stencilled on them 'Canadian Produce,' as a few parcels were detained at the docks by the Customs officials till the consignees had the boxes stamped according to import regulations.

#### EGGS.

This was a blank season in eggs, none arriving in Glasgow from Canada. Prices ruled high most of the season and had Canada had the eggs to export, profitable business would have resulted.



## SESSIONAL PAPER No. 15a

## BACONS AND MEATS.

There has been a large decrease of all hog imports to Glasgow during the season, compared with last, due to the decrease of hogs in Canada, and the additional requirements of a rapidly increasing population there.

Consignments arrived in good condition and gave satisfaction to all handling them, and considerably larger quantities are desired here. Owing to the existing scarcity prices have ruled high.

## CANNED MEATS.

Canned meats show a continued reduction. This trade has never recovered from the scare of a few years ago; the total imports being 230 cases of jellied veal.

## FROZEN MEATS.

The imports of frozen meats from Canada show a welcome growth, this season's totals reaching 17,521 boxes and 100 bags, also 50 tierces of beef udders.

The bulk of the arrivals have been of satisfactory quality, but a portion has been apparently from the carcasses of old cattle and some not of very high quality, and over the examination of which the local food inspectors have passed adverse criticisms. In view of the rigid system of inspection of 'boneless meats,' both on arrival of steamers and in the meat market, shippers would do well to be careful. I may state that two recent arrivals of beef udders were condemned by the inspectors and not allowed to be used.

## CANNED APPLES.

Owing to the scarcity of United States brands, the arrivals of these show an increase. Consignments have arrived in good condition, very few damaged cases appearing, a limited few only showing leakage on arrival. The packages in some cases could stand a stronger box, but as a rule all have landed in very sound condition.

The quality has given satisfaction to the trade, a small percentage of blown or defective tins having been reported by receivers, running from 3 to 5 per cent usually.

One complaint I have received, which is worthy the attention of packers, is that of cutting the fruit too small, the presumption being that smaller or poorer grade fruit is utilized. This defect is more noticeable in the earlier cannings. Buyers prefer even size and cut.

## APPLES.

This season witnesses the inauguration of a new system of selling Canadian apples in Glasgow, viz., the establishment of a central saleroom by Messrs. Simons, Jacobs & Co., Jas. Lindsay & Son, L. & H. Williams & Co., and Mr. Thos. Russell, who have jointly leased premises admirably adapted for the system, and by this means the bulk of the buyers are concentrated at one sale, whereas under the old system buyers were scattered over all the sales of the separate firms, which were carried on simultaneously. Another item which enhances Glasgow as a distributing centre for Canadian apples is the fact of the railway companies offering reduced freight rates for apples to the north and north-east coast of England, which enables buyers from these districts to patronize the Glasgow market in preference to Liverpool. A large portion of the fruit arriving here this year was bought by English buyers.

The Canadian apple trade with Glasgow has been of large dimensions, arrivals being much in excess of last season, and the crop much larger than buyers were led to believe from statistical reports.

In connection with the barrels there is still room for improvement in the branding. Several parcels still come to hand with varieties and grades pencilled only; in fact, it not infrequently happens that barrels have no brand on at all. When there



1 GEORGE V., A. 1911

are two parcels of similar brand on the same ship for different consignees it would be an advantage to have a distinguishing counter mark, such as an initial letter or some such simple device, which would expedite delivery by the shipping companies and save extra labour to the individual consignees.

*Quality.*—Early season's arrivals were of good quality. The fruit was clean and sound as a rule, the pack also was of a fair standard size, though a few parcels arrived of irregular grade, and the condition was good. As a result, satisfactory prices were secured, the earlier coloured varieties returning satisfactory prices for a few weeks. With the commencement of winter varieties prices were well maintained, but it became very apparent that in some districts the apples were of small growth and in consequence the pack became more irregular, but prices for good quality continued satisfactory and shipments continued large. Towards the close of the Montreal season the grade of fruit deteriorated very considerably, and coupled with heavy shipments of Nos. 2 and 3 grade fruit, the market was unable to overtake supplies, the demand having slackened on account of the quality.

For reasons stated, prices became very low during December and the early part of January, but since then prices have continued satisfactory for good stock of Baldwins, Stark, Phoenix, Wagener, Seeks, Greenings, Manns, Fallawater, Russet, &c.

Complaints of poor grade stock have been common, but a regrettable feature has been the numerous complaints of dishonest or fraudulent packs foisted on the public; such practices eventually react upon the packers, as buyers soon get to know unreliable brands and smaller prices result. I am glad to report an improvement in pack grade from the beginning of January.

*Condition.*—The condition of early fruit exrefrigerators was good, but during October many arrivals came to hand overripe and poorer prices resulted. With the commencement of winter varieties conditions improved and prices also, but Spies, never too good, began to arrive in the second week of December inclined to give way and out of condition, and since then few parcels of choice Spies reached here in first class condition, later consignments showing traces of frost, some parcels being quite 'spent.' Some brands in particular continued weekly to arrive frosted and out of condition and looked to have been touched with frost before they were picked from the trees. This condition has been the source of many complaints, and disputes between brokers and retailers have resulted.

*Boxes.*—Large shipments of boxes of forty pounds also arrived, considerably in excess of last year's shipments, but I regret the same defect of bad packing was pronounced in the boxes also, in many cases the fruit being far below the standard desired by the market. There is a growing trade in boxes, but it can only be fostered by selecting and packing higher grade fruit than was received this season, and a more rigid system of inspection of boxed apples is necessary in order to bring Canadian boxed apples to a standard of equality with those from other countries.

#### NOVA SCOTIAN APPLES.

There have been considerable shipments of these apples, although prices were not so remunerative for them as last season on account of the then scarcity of Ontarian fruit. They arrived in very sound condition, but were also inclined to show irregularity of pack in certain brands.

There is an increasing demand for apples here, as this class of fruit is now looked upon more as a necessity of diet than a luxury, and increased quantities will be consumed and marketed in Glasgow by reason of improved transport facilities by shipping companies and cheaper rates offered by railway companies to consuming centres, and given well packed and honestly graded fruit, handsome prices, I am sure, will be returned to shippers provided quality and pack are satisfactory.



## SESSIONAL PAPER No. 15a

## PEARS.

Rather over 5,000 packages of pears reached Glasgow. The earlier shipments of Bartletts in cold storage arrived sound and made good prices, but some parcels reached here overripe and were not so successful. Duchess, Anjou, Sheldon and Howell arrived with varying results in ordinary storage, Howell and Sheldon generally being overripe or approaching so, and later arrivals of Kieffers likewise came to hand overripe.

There is scope for developing the pear trade with Canada, but to be successful choice fruit had better be shipped in refrigerator at a temperature of from 34 to 36 degrees.

This season, unfortunately, was not conducive to good prices being secured, as this market was in receipt of very large arrivals from France and other centres, and pears for a time were difficult to sell.

The most suitable package is the 20-pound case. This size is more popular with the trade and the fruit carries better than in the 40-pound box, and all choice fruit should be wrapped.

## REPORT OF THE BRISTOL CARGO INSPECTOR (CAPT. H. E. SHALLIS).

BRISTOL, March 31, 1910.

I herewith submit particulars of the work for the port of Bristol for the past year.

## CHEESE.

With this produce we have exceeded our totals of last year by about 24,000 boxes, and from general observation I am of opinion that it has come along in very satisfactory condition. With regard to heated cheese, with one exception, there has been little complaint; the lot referred to arrived per ss. *Cornishman* on August 4. It was shipped and also landed here in exceptionally hot weather, also a quantity got heated in transit from the docks to Bristol. Instances of cheese having been cut and then filled in with an inferior quality of curd, and also shrinkage, have not been so noticeable, but we have had several instances of big discrepancies in the weight as marked on the boxes and the actual weight of cheese after making due allowance for shrinkage. This matter I have already brought to your notice. The old trouble with the boxes still exists and some improvement in that direction is much needed. The quantity of breakage is no greater, but it does not seem to get any less. Very few of the sewn type of box have come to hand; it is very noticeable how few of this kind are broken. Recently we had another type of box which I referred to in one of my reports, and which appeared to be very serviceable for its purpose. One great cause of so many breakages I attribute to the cheese not being put into proper sized boxes, the same being either too large or too small for the contents. One of our leading merchants attributes a lot of the shrinkage to the broken boxes. New Zealand cheese continues to make headway, but from what I can learn Canadian cheese holds its own with regard to quality, but so much coming along as it does with the packages in more or less damaged condition is a hindrance to a quick sale. This appears to be the chief cause of complaints I have had this year; otherwise the merchants have all expressed their opinion that they much approve of the condition of the cheese that has come to their respective orders.

## BUTTER.

With this there has been a great falling off, though our shipments are far in excess of other ports. What has come to hand has been of good quality. The boxes, I think, would be better if more strongly put together, the grooving is so apt to come apart at any knock; and very few boxes this season have been covered, which should in all cases be done.



1 GEORGE V., A. 1911

## EGGS.

This trade seems to be quite lost, none having come to hand, which is a great pity, as Canadian eggs are much liked and well spoken of by some of the egg merchants I have conversed with.

## MEATS.

Here we also have a falling off in totals, but the quality has been good and has given general satisfaction. The merchants here would like to see a large increase in this produce and are desirous of drawing the department's attention to the same.

## APPLES.

We have had an increase of over 9,000 barrels over the previous year, the shipments the latter part of the year coming along in good quantities. With the exception of three or four small lots, all have been sent through to South Wales, Cardiff chiefly, which port is now doing a large business in this line. Bristol and its surroundings have been kept supplied by the apple districts near at hand, and though the supply has been large, the quality this year has not been all that could be desired, the apples being for the most part small. From personal observation and reports I have received from Cardiff, the Canadian shipments have been good, well up to grade, and fetched good prices, altogether an improvement on last year. The Canadian apple trade as far as Bristol is concerned has greatly fallen off, but there is no reason why a big trade should not be built up, as good Canadian apples are greatly in demand and make good prices.

## THERMOGRAPHS AND TEMPERATURES.

Thermographs have been placed regularly on board the different ships and have all shown good results. The temperatures also have been well maintained in all the refrigerators and cooled air chambers.

During the Montreal season the Dominion Line placed the ss. *Cornishman* on the run in the place of ss. *Roman*. The former is a most serviceable ship and has capital refrigerator accommodation, which showed excellent results. The other ships in the service are the same as before. They have as usual kept up their reputation and have during the season run their refrigerators and cooled air chambers most satisfactorily and without mishap. The unloading at our docks is done as rapidly as possible; at the same time all care is taken to minimise damages. The goods are sent forward as quickly as possible on being landed. We have now with the new dock exceptional facilities for the rapid handling of all classes of cargo. I am in frequent touch with the dock and steamship officials, who are always ready to render any service in the interests of the Canadian trade, and I am much indebted to them for the same.

## BUTTER TRANSPORTATION.

Fifty-eight routes in the provinces of Ontario and Quebec were covered by the special iced butter cars which were run each week from May 17 to October 16. This service was carefully supervised by this division, six inspectors being employed throughout the season in testing the temperature of the butter at country shipping points and at Toronto and Montreal and reporting to this office any irregularities in the service. The travelling inspectors made weekly reports giving the temperatures of all packages of butter which they examined, while the inspectors at Montreal made both daily and weekly reports. Each week, upon receipt of the travelling inspectors' reports, circulars were sent from this office to shippers whose butter tested higher than fifty degrees, stating the exact temperature of each lot and pointing out the importance of keeping butter at the lowest possible temperature while it is stored awaiting shipment.



## SESSIONAL PAPER No. 15a

## SERVICE APPRECIATED BY SHIPPERS.

It is gratifying to know that the efforts of this branch in supervising the iced butter car service and endeavouring to make it as perfect as possible are appreciated by shippers. Before the present system of inspection was organized the railways did not take any special interest in the operation of the iced cars, and a very indifferent service was the result. That present conditions are more satisfactory is shown by a letter which we received on November 28, from Messrs. Hodgson Bros. & Rowson, the well known butter and cheese exporters of Montreal, in which they referred to the iced car service as follows:—

‘The inspection maintained by the government at the railways on butter has resulted in a marked improvement in the condition of the butter as delivered into our warehouse from the factory. Prior to this, fully 75 per cent of our butter would come in a heated condition, although professedly brought in iced cars.’

## TEMPERATURES OF QUEBEC BUTTER, 1905-1909.

The following statement shows the average temperature of creamery butter at shipping point in the province of Quebec for the five-year period from 1905 to 1909 inclusive.

TABLE No. I.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909. (J. N. Lemieux, inspector.)

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
J. A. McCallum.	Danville	40.2	44.9	53.8	40.1	44.2
L. L. Gale.	St. Cyr.	40.7	54.7			
J. L. Côté.	St. Guillaume station	41.0				50.3
C. E. Lamarche & Cie	St. Esprit (Montcalm).	41.0	57.4			
L'Ecuyer & Chaput.	Ste. Elzabeth.	41.8	51.1	50.7		
P. Proulx	Ste. Agathe, Lotbinière	42.1	43.1	42.8		
A. Michaud	Rimouski.	44.0	47.5	57.0		
Forget & Parthenais, (F. P. 1).	Ste. Anne des Plaines.	44.4	47.0	50.0	49.0	
Wm. Parent.	St. Guillaume d'Upton	44.5				
Jos. Helie	St. Wenceslas	45.0	53.5	45.4		
Gendreau & Imbeault	St. Luc de Matane	45.2	48.3			
Rodolphe Chagnon.	St. Germain de Grantham	45.4	59.0	49.0		
C. Daudelin	St. Pie.	45.5	48.0		50.3	56.1
E. Lahaie	St. Guillaume	45.6				56.3
E. Dumas	L'Epiphanie	45.7	45.4	47.7	55.3	
Alex. Lanoie.	St. Marcel.	46.0				
Geo. Bennett (Hazelbank).	New Glasgow.	46.2	44.5	47.5		
Cassen Bros	Kingsey	46.3	52.5	43.6	44.1	
Eugene Côté.	Isle Verte	46.3	46.7	43.4	42.2	
Eugene Roy	St. Clement	46.4	50.9	50.3		
Aug. Breton.	L'Epiphanie.	46.8	47.3	52.0	52.0	
Forget & Parthenais, (F. P. 2).	Ste. Anne des Plaines.	46.8			45.0	
Georges Vermette	St. Agapit	46.9	51.6	53.6		
M. Ethier	Ste. Julienne.	47.0	57.2	53.3		
Hormisdas Laprade.	St. Guillaume.	47.0				
A. Dandonneau.	St. Damien de Brandon	47.4	45.4	43.0		
A. Ravenelle.	St. Pie.	47.5	50.5		44.2	55.6
O. Mercier	St. Charles, Bellechasse.	47.6	50.8	65.0		
J. B. Grenier.	Ste. Rosalie.	47.8	48.4	49.5		
Jos. Fleury	St. Leon.	47.8	42.2	57.8	60.6	57.0
J. L. P. Marchand	Ste. Anne de la Perade.	47.9	53.3			
E. Desrochers	Ste. Beatrice.	48.0				
A. A. Nicolle (N)	St. Simon de Rimouski.	48.1	50.6	48.8		
W. H. Wilson	St. Sylvestre West.	48.4	47.2	49.0		



1 GEORGE V., A. 1911

TABLE No. I.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909—Continued.

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
L. Levesque	Cacoma	48.5	48.2			
A. Langevin	St. Pie	48.5	59.0			
A. St. Onge	Maskinonge	49.0				
Jos. Gravel	St. Gabriel de Brandon	49.0				
J. E. Larose	Laurentides	49.0		51.3		
Louis Roy	St. Jacques Nord.	49.0	55.0			
Ludger Lamothe	Clarenceville	49.1	50.8	46.3	55.5	
Grenon Freres	St. Barnabe, Riv. Yamaska.	49.1	52.9	50.8	45.6	51.7
J. C. Rioux	Ste. Flavie Station	49.2	53.8	53.0		
E. R. Pepin	St. Basile de Portneuf	49.2	51.5	54.4	55.8	56.0
B. Bergeron	(Shipping station) Labelle	49.2				
E. Beaudry	St. Pie	49.5	56.8			
D. Pelletier	Acton Vale	49.5	51.2	54.0		
Cyril Godbout (B)	St. Eloi	49.5	46.1	51.8		
Eng. Godbout	"	49.6	51.6	59.0		
W. St. Georges	St. Jean de Matha	49.8				
O. Beaudry	Ste. Emelie de l'Energie	49.8				
Dorius Brodeur	L'Ange Gardien	49.8	57.7	56.0	52.8	53.4
Aristide Laurier	Lachenaie	50.0	54.5			
Joseph Beaulieu	Ste. Flavie	50.0		52.5	48.6	
Joseph Lemieux	Ste. Agathe de Lotbiniere	50.0	58.3	50.3		
L. J. Desilets	S. Sylvere	50.0				
Syndicat St. Paschal	St. Paschal	50.1	49.0	51.0		
Eugene Metivier	St. Cyrille de L'Islet	50.1	52.2	52.0		
Cyril Godbout (H. B. R.)	Isle Verte	50.1	51.0	47.3		
D. Legare	St. Hippolyte de Kilkenny	50.2	64.5	64.5		
Jos. Gaudet	Ste. Marie Salome	50.2	57.0	53.0		
F. X. Senay	Brodeur	50.4	53.2	50.0	52.0	
E. Vaillancourt	St. Jean Port Joli	50.5				
Joseph Houle	St. Jean de Martha	50.5				
Charles Harvey	Anqui	50.5		50.0		
Joseph Charette	St. Zenon	50.7				
J. A. Saindon	St. Arsene	50.7	47.5	52.0	50.3	
O. Bernier	Laurentides	50.8		50.6	53.0	
Francois Roy	Mont Carmel	50.8	45.1	56.0		
Syndicat d'Upton	Upton	51.0	53.5	54.5		
F. Rondeau	Ste. Emile de L'Energie	51.0				
Francois Robitaille	St. Damien de Brandon	51.0	55.8	51.5		
Phileas Lavallee	St. Gabriel de Brandon	51.0	50.0	51.5		
V. Gerry	Ste. Cecile de Milton	51.0	62.0			
A. Deragon	St. Valerien	51.0	58.0		53.8	
A. Gratton	Laurentides	51.0				
Joseph Deroches	Ste. Beatrice	51.0		53.0		
P. Gauthier	St. Luc de Matane	51.1	49.0	44.0		
L. A. Boucher	L'Islet	51.1	51.0	54.5		
Nazaire Demers	St. Giles	51.2	53.8	55.6		
A. Fraser	Matane	51.2	48.0	50.0		
Arcade Coupal	Henryville	51.3	49.3	51.6		51.7
D. Keronack	St. Narcisse	51.4	53.3	51.5		
E. Marchand	St. Joseph de Nicolet	51.5	57.5	53.0		
S. Comtois	St. Damien de Brandon	51.5	43.7	52.5		
H. Guilbault	Vacluse	51.6			54.3	
Montreal Dairy Co.	Montreal	51.6				
A. Fortin	St. Paul de la Croix	51.6		52.3		
F. Provost	Acton Vale	51.8	59.3	56.9		
J. A. Bourbonnais	Pont Chateau	51.8				
Camille Bernier	Cap St. Ignace	51.9	58.0			
Geo. Bennett (Elm Bank)	New Glasgow	52.0	47.0	48.3		
Philibert Plante	St. Joseph de LePage	52.0	55.6		53.6	
D. Guilbault	St. Gabriel de Brandon	52.0	45.3	54.3		
Joseph Dufresne	"	52.0				
E. Desrochers	St. Charles de Mandeville	52.0		52.0		
Dr. P. Dube	St. Sylvestre East	52.1	54.0	56.5		



## SESSIONAL PAPER No. 15a

TABLE No. I.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909—*Continued.*

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
J. B. Anctil.....	Cedar Hall.....	52.1				
H. Leroux.....	St. Georges (Montcalm) ..	52.1	52.6	51.0		
Alphonse Mercier.....	St. Patrice.....	52.2	49.2	49.8		
A. A. Nicolle (2).....	St. Simon.....	52.2	48.2	46.6		
Gilbert Brunette.....	St. Liboire.....	52.2	60.0	53.5		
N. Gadoury.....	St. Jean de Matha.....	52.2				
A. W. Cyr.....	Ste. Anne de la Perade.....	52.3	60.6			
Israel Dion.....	La Chapelle.....	52.4	46.3	52.5		
A. Desrosiers.....	Ste. Beatrice.....	52.5	58.0			
Sam Pellerin.....	Kildare.....	52.5	54.3	55.0		
P. Langlais.....	Ste. Angele de Merici.....	52.6		57.0	53.3	
Cyril Godbout (C.G.).....	St. Eloi.....	52.7	53.1			
G. Couture.....	St. Anaclet.....	52.7	55.0	54.0		
Hubert Morin.....	Buckland.....	52.7	62.0	58.0		
A. Tremblay.....	St. Aubert.....	52.7	57.7			
Aug. Boucher.....	St. Cléophas de Brandon.....	52.7				
Joseph Rochéteau.....	St. Didace.....	52.7	56.1	61.5		
A. Drouin.....	Ste. Sophie de Lacorne.....	52.7	59.0	51.8		
Alex. Robillard.....	St. Jean de Matha.....	52.8				
J. A. Roy.....	St. Jean de Matha.....	52.8			54.0	
Horace Brunelle.....	Upton.....	52.8	56.7	56.4		
J. Chamberland.....	Sandy Bay.....	52.8	51.5	51.0		
Alfred Belzil.....	St. Mathieu.....	52.9	53.3	54.0		
Couture & frère.....	St. Sebastien.....	53.0	56.4	52.8		
Jos. Brasseur.....	Egypte.....	53.0	54.7	56.0		
F. Thibault.....	L'Islet Station.....	53.0	54.5	54.0		
J. B. Thériault.....	St. Modeste.....	53.1	52.2	50.3	54.6	
Telesphore St. George.....	Kildare.....	53.1	54.2	51.0	53.6	
C. Marsan.....	St. Liboire.....	53.2	57.2			
J. B. St. Pierre.....	St. Hippolyte de Kilkenny.....	53.2	62.7	68.0		
Moise Boucher.....	Ste. Melanie.....	53.3	52.5	56.5	60.0	
W. Girard.....	Acton Vale.....	53.4	57.0	59.0		
Cyril Godbout (R. 18).....	Isle Verte.....	53.5	55.6	50.3		
A. Lafond.....	St. Didace.....	53.5	59.5			
Wm. Parent.....	Cavignac.....	53.5				
Sweet Milk Condensing Co.....	Laurentides.....	53.5	59.6	60.3		52.9
Jos. Mirault.....	St. Come.....	53.5	54.5			
J. P. Thériault.....	St. Alphonse (Joliette).....	53.5	55.0	55.0		
H. Provost.....	L'Epiphanie.....	53.6	60.0	55.0		
J. H. Vadnais.....	L'Ange Gardien.....	53.7	57.7	50.0	48.2	50.1
Henri Lecompte.....	St. Theodore d'Acton.....	53.8	59.6	54.3		
R. Vincent.....	St. Alexis (Montcalm).....	53.8				
J. N. O. Fournier.....	St. Magloire de Buckland.....	54.0	59.6	56.0		
A. Jeannelle.....	St. Germain de Grantham.....	54.0	60.0			
A. Champagne.....	Ste. Emelie de L'Energie.....	54.0				
Syndicat St. Roch.....	St. Roch L'Achigan.....	54.0	57.0			
A. Grenier.....	Joliette.....	54.0	47.0			
A. N. Beaudry.....	St. Zenon.....	54.1				
A. Lussier.....	Ste. Helene de Bagot.....	54.2	58.8	54.0		
O. Roberge.....	St. Felix de Valois.....	54.2			61.3	
E. Paquet.....	St. Theodore d'Acton.....	54.2	58.4	57.0		
John April.....	Chemin Taché.....	54.3	55.1	52.3		
Rev. M. Carmel.....	St. Cyprien.....	54.3	53.6	59.0		
P. Kerouack.....	St. Eugene de L'Islet.....	54.3	59.0	58.5		
J. R. Coutu.....	St. Gabriel de Brandon.....	54.3	57.8	55.3	58.6	
Mark Macduff.....	Upton.....	54.4	57.6	54.0		
J. Ludger Rioux.....	Trois Pistoles.....	54.4	52.1	50.7		
Lucien Belanger.....	St. Damien de Buckland.....	54.4	55.1	59.0		
Laporte & frère.....	Kildare.....	54.4		52.4	56.6	
R. Chagnon (10 <sup>e</sup> Rang).....	St. Germain de Grantham.....	54.5	57.3			
N. Rocheleau.....	St. Gabriel de Brandon.....	54.5				
A. Lapalme (Prairie ?).....	St. Hugues.....	54.5	56.0	52.0	55.0	



1 GEORGE V., A. 1911

TABLE No. 1.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909—*Continued.*

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
N. Tetreault	St. Hugues	54.5	59.0	59.5	53.6	...
James Miller	Ulverton	54.5	61.0	53.0	...	...
C. E. Duquette	St. Hyacinthe	54.5	58.5	...	...	63.0
Geo. Roy	Montmagny	54.6	53.7	53.0	...	...
Aug. Robillard	St. Jean de Matha	54.6	...	...	...	...
Frs. Morin	Morin	54.7	56.6	...	...	...
A. Gaudreau	L'Islet	54.7	61.2	55.5	...	...
A. Olivier	St. Norbert	54.7	56.0	54.5	...	...
A. Lapalme (Prairie ?)	St. Hugues	54.7	48.0	50.0	...	...
Auguste Pelletier	St. Roch des Aulnaies	54.8	58.5	60.0	...	...
Wilfrid St. Onge	Mont Johnson	54.8	53.2	54.3	...	53.2
Marceau & Corriveau	St. Valier	55.0	60.0	55.5	...	...
John Belanger	Green River	55.0	...	...	...	...
Nap. Dufresne	St. Helene de Bagot	55.0	60.5	...	...	...
Charles Gravel	L'Assomption	55.0	61.3	58.2	...	...
L. Lacasse	Ste. Lucie	55.0	57.2	...	...	...
J. P. Rocheleau	Pauline	55.0	...	...	...	...
C. Vadnais	St. Marcel	55.0	59.0	...	...	...
H. Lafrance	St. Joseph du Lac	55.0	58.3	55.3	52.8	...
J. A. Ratté	St. Pierre, Rivière du Sud	55.1	57.4	57.0	...	...
J. Lachapelle	St. Jacques L'Achigan	55.1	...	53.5	...	...
Eustache Menard	L'Anse a Giles	55.1	62.5	60.0	...	...
O. Gelinas	St. Elie	55.2	51.0	53.8	67.6	...
W. Landreville	St. Jean de Matha	55.2	...	...	...	...
O. W. Seguin	St. Polycarpe Junction	55.3	...	...	...	...
Ed. Belanger	Cap St. Ignace	55.3	58.7	58.0	...	...
J. D. Blanchette	St. Roch des Aulnaies	55.3	58.9	56.0	...	...
L. P. Paradis	St. Raphael	55.4	58.6	55.8	...	...
Henri Lessard	St. Leon	55.4	54.6	51.5	...	...
Israel Thounin	Ste. Lucie	55.5	60.1	62.3	...	...
O. Archambault	St. Paul L'Ermite	55.5	...	...	...	...
L. Cie de Lanterrie	St. Pierre, Rivière du Sud	55.5	59.5	...	...	...
Eugene Gourgue	St. Paul du Buton	55.5	...	...	...	...
W. Ferron	St. Leon	55.6	54.6	52.7	...	...
J. A. Massicotte	Ste. Melanie	55.8	...	41.0	...	...
P. Dumas	St. Francois Montmagny	56.0	...	...	...	...
W. Prault	St. Magloire de Buckland	56.0	...	...	...	...
L. Menard	St. Lazare Station	56.0	...	...	...	...
Felix Bruneau	St. Felix de Valois	56.0	...	...	...	...
O. Desmarais	St. Felix de Valois	56.0	...	...	...	...
X. Brault	St. Felix de Valois	56.0	...	...	60.3	...
Laporte & Coutois	Ste. Emelie	56.0	...	...	...	...
Jos. St. Pierre	Ste. Rosahe	56.0	59.0	52.0	...	...
J. A. Bourbonnais	St. Polycarpe	56.0	...	...	...	...
L. Lecompte	St. Francois Montmagny	56.1	57.2	61.0	...	...
Theophile Lizotte	Ste. Louise	56.1	58.5	...	...	...
Delphis Tetreault	Upton	56.2	58.2	52.5	...	...
J. O. Goyette	St. Liboire	56.2	55.6	...	...	...
J. Dumas	St. Jean de Dieu	56.2	54.3	54.0	...	...
J. Dupuis	St. Michel de Bellechasse	56.2	...	...	...	...
J. N. Nadeau	Notre Dame du Lac	56.2	...	...	...	...
Fred Caron	St. Jean Port Joh.	56.2	58.0	58.0	...	...
J. B. St. Pierre	St. Philippe de Neri	56.3	59.7	58.0	...	...
Aurèle Leclerc	St. Eugene de Grantham	56.3	59.5	53.3	...	...
Ed. Jean	St. Fabien	56.3	53.6	53.3	...	...
A. Lecompte	St. Pierre, Rivière du Sud	56.3	...	...	...	...
Jos. Tremblay	Ste. Felicite	56.4	55.8	55.5	...	...
E. Ringette & F	St. Nazaire d'Acton	56.4	60.8	47.0	...	...
C. Joly	Ste. Emelie de L'Energie	56.5	...	...	...	...
D. Lorrain	St. Janvier	56.5	61.5	58.0	...	...
Wm. Houle	St. Claude	56.5	56.6	...	...	...
E. Cassavant	Abbotsford	56.5	60.0	...	...	...



## SESSIONAL PAPER No. 15a

TABLE No. 1.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909—*Continued.*

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
Jos. Lemonde	St. Laboure	56.5	59.1	53.8		
J. Blanchette	Ste. Anne de la Pocatiere	56.6	59.5			
J. B. Lanthier	St. Jerome	56.6	58.3			
P. Sivoie	St. Nazaire d'Acton	56.7	62.6	51.5		
J. G. Heroux	Terrebonne	56.7		59.5		
O. E. Dallaire	St. Hyacinthe	56.7				
Isidore Jodoin	St. Theodore d'Acton	56.7	53.2	54.5		
Lacasse & Blanchet	St. Gervais	56.8	59.6			
Arthur Bazinet	Ste. Emelie de L'Energie	56.8				
Ed. Frechette	St. Felix de Valois	56.8				
Ludger Pellerin	Stanford	57.0	58.3			
N. Lussier	Acton Vale	57.0	57.5	56.4		
A. S. Deslandes	St. Valerien	57.0	54.6	57.0		
H. Blanchard	St. Hyacinthe	57.0		61.0		
Nere Morin	Ste. Helene de Kamouraska	57.0				
O. Ratelle	St. Paul de Joliette	57.0	55.3	59.0		
J. L. Letourneau	Shipping Station-Labelle	57.0				
Albert Houle	St. Simon de Yamaska	57.0	61.2	50.2	55.0	
George Bennett (Green Bank)	New Glasgow	57.0	60.0	57.0		
Andre Brasseur	Ste. Christine	57.1				
Az. Deslauriers fils	St. Dominique de Bagot	57.2	59.8			
Joseph Guertin	St. Liberte	57.2	59.4	65.0		
A. Provost	St. Nazaire d'Acton	57.2	60.2	52.7		
Victor Houle	Ste. Helene de Bagot	57.2	60.8	51.2		
Joseph Meunier	St. Sebastien	57.3	61.8			
A. Richer	Emileville	57.4	62.0	53.5		
Denis Lariviere	Ste. Marie de Blandford	57.5	57.5			
Pacifique Houle	Duncan	57.5	60.4	49.0		
Ed. Brosseau (E.B. S)	St. Sauveur des Monts	57.5	59.0	59.3	62.3	
M. Brault	Montcalm	57.5	52.0	50.5		
W. Vezina	Cap Sante	57.6	66.2	59.3		
J. F. Tondreau	Montmagny	57.6				
S. Ducharme	St. Cleophas de Brandon	57.7				
A. Gazaille	St. Dominique de Bagot	57.7	60.0		53.2	
O. Chagnon	St. Valerien	57.8	58.8			
John Albert	Albertine, N.B.	58.0				
H. Charland	St. Simon de Yamaska	58.0	58.8	52.7	53.7	
I. Dessert	St. Eustache	58.0	58.5			
Is. Archambault	St. Basile Portneuf	58.1	54.5	57.6	55.5	
P. H. Gareau	St. Polycarpe	58.2				
L. E. Cote	Montmagny	58.2	59.5	61.0		
W. Gareau	St. Jerome	58.3	46.9	50.5	50.0	
A. Chagnon	St. Dominique de Bagot	58.5	63.0			
C. Messier	Ste. Helene de Bagot	58.5	63.3	47.0		
L. J. A. Menard	St. Michel des Saints	58.5				57.6
A. J. Desroches	St. Felix de Valois	58.5				
H. Lacasse	Ste. Lucie	58.5	59.3	64.3		
E. Beauregard	Rawdon	58.5	57.0			
H. Bergeron	St. Paulin	58.6	53.0	51.5	66.3	
L. Z. A. Robillard	St. Esprit	58.6	61.6	56.5		
M. E. Tremblay	Clarenceville	58.6	58.5	55.0	56.0	59.3
O. Bellehumeur	St. Eugene de Grantham	59.0	58.0	54.0		
J. Gourre	L'Epiphanie	59.0	61.5	54.0		
Alb. Lapointe	St. Paul d'Industrie	59.1	55.0	52.0		
Louis Nadeau	Sabrevois	59.2				
Az. Brien	St. Roch L'Achigan	59.2				
Wilfrid Boucher	St. Barnabe (St. Maurice)	59.3	61.1			
J. O. Denis	St. Lazare Village	59.5				
H. Mailhot	Ste. Gertrude	59.5	61.0	50.0		
Nap. Dion	St. Canut	59.5	59.7	57.8		
Alp. Lanthier	New Glasgow	59.5	58.5			
Naz. Heroux	St. Barnabe (St. Maurice)	59.6	59.3			



1 GEORGE V., A. 1911

TABLE NO. I.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909—*Continued.*

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909	1908	1907	1906	1905
		Deg.	Deg.	Deg.	Deg.	Deg.
J. A. Alarie	St. Roch L'Aclagan	59.6	62.8	56.0	.....	.....
W. Lamy	St. Leon	59.6	53.0	.....	.....	.....
Jos. Roy	St. Valier	59.7	60.0	.....	.....	.....
A. Brunet	Riviere Gagnon	59.7	54.7	.....	.....	.....
U. Benoit	Portneuf	60.0	.....	.....	.....	.....
John Burns	St. Theodore de Chertsey	60.0	55.7	.....	.....	.....
Esdras Bellemare	Maskinonge	60.2	.....	.....	67.3	.....
P. Allard	St. Alexis des Monts	60.2	60.0	51.5	66.3	.....
O. Gendron	Yamachiche	60.4	64.2	65.2	.....	.....
H. Bourassa	Yamachiche	60.5	68.5	.....	.....	.....
P. Mailloux	St. Michel de Rougemont	60.5	63.0	50.0	51.6	53.6
Alexis Senev	Ste. Rose du Degele	61.0	.....	.....	.....	.....
Bosvert & Bussiere	Canton	61.0	63.0	59.5	.....	.....
Omer Gelin	St. Barnabe (St. Maurice)	61.0	57.6	.....	.....	.....
C. Lavolette	St. Esprit	61.0	57.2	.....	.....	.....
H. Lapalme	St. Paul d'Abbotsford	61.2	63.7	52.0	51.4	62.0
Faucher Roy	Ste. Elizabeth	61.3	58.3	54.4	.....	.....
P. Cinq Mars	St. Pierre les Beequets	61.3	.....	.....	.....	.....
J. E. Grenier	Hunterstown	61.4	62.6	.....	.....	.....
Fr. Flabault	St. Barnabe (St. Maurice)	61.4	.....	.....	.....	.....
Malo Leclerc	St. Basile le Grand	61.5	.....	.....	.....	.....
H. Leclerc	Pont de la Noreau	61.5	62.5	49.4	57.1	.....
C. Robinson	Mascouche	61.5	65.5	68.0	.....	.....
J. W. Kempton	Shawbridge	61.5	59.5	59.3	63.0	.....
E. Thien	St. Calixte	61.5	62.0	58.0	.....	.....
D. Lanthier	St. Augustin	62.0	55.2	54.2	56.4	.....
C. Forget	St. Liguori	62.0	58.0	.....	.....	.....
T. Lacerte	St. Severe	62.2	63.6	61.5	.....	.....
J. E. Binet	St. Eustache	62.3	54.0	.....	58.3	.....
A. Paquin	St. Boniface	62.3	.....	68.0	.....	.....
Art. Morissette	St. Pierre les Beequets	62.3	.....	.....	.....	.....
A. Lapointe	Montcalm	62.6	55.0	.....	.....	.....
E. Brosseau (E. B. 1)	St. Sauveur des Monts	62.7	59.3	63.5	.....	.....
Geo. Beausoleil	St. Alexis (Montcalm)	62.7	58.2	55.3	.....	.....
U. Perrault	St. Jude	62.7	63.5	46.5	.....	.....
L. Robert	Yamachiche	63.0	.....	.....	.....	.....
Z. Gauthier	Mascouche	63.0	57.0	57.0	.....	.....
Jos. Lamarche	L'Epiphanie	63.0	.....	.....	.....	.....
J. G. Hamelin	St. Polycarpe	63.5	.....	.....	.....	.....
Mathias Brosseau	Piedmont	63.5	62.0	.....	.....	.....
Jos. Tremblay	Petit Matane	63.6	.....	.....	.....	.....
P. Leblais	Grande Freniere	63.6	61.0	.....	.....	.....
G. Belanger	St. Sauveur des Monts	64.0	63.0	65.3	.....	.....
A. Bastien	St. Jerome	66.0	.....	.....	.....	.....
Louis Rebeau	St. Paul L'Ermite	66.0	59.0	.....	.....	.....
Ed. Brosseau (E. B. 4)	St. Sauveur des Monts	67.0	63.3	66.3	.....	.....
A. Davis	Christieville	67.0	60.6	59.0	.....	.....
Ed. Brosseau (E. B. 5)	St. Sauveur des Monts	69.0	64.3	66.0	.....	.....



## SESSIONAL PAPER No. 15a

TABLE NO. II.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909. (F. A. Knowlton, inspector.)

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
T. W. Dunn.....	Cowansville.....	39.3	.....	48.0	50.1	54.3
S. J. Kathan.....	West Bromo.....	42.0	.....	48.0	.....	.....
A. Converse.....	Ways Mills.....	43.5	.....	45.8	44.9	48.3
A. H. Bouchard.....	Eastman.....	44.0	44.0	50.0	44.1	51.1
L. Vanchestagne.....	Napierville.....	45.0	60.0	.....	52.7	.....
Gilbert & Bureau.....	Compton.....	45.0	57.4	49.6	.....	.....
A. A. Hodge.....	Sawyerville.....	45.0	43.3	43.0	47.3	52.2
Guy Griggs.....	Mansonville.....	45.0	46.5	48.5	51.2	52.7
Jos. Labelle.....	Vale Perkins.....	45.2	45.5	47.9	51.2	52.5
Olmsted & Bonight.....	Sutton.....	45.5	.....	.....	.....	.....
L. Ladouceur.....	St. Edwidge.....	46.0	51.8	39.5	.....	.....
Alex. Lemaire.....	White's Station.....	46.0	.....	.....	.....	.....
J. Darby.....	Ornstown.....	46.0	.....	.....	.....	.....
A. Gerin.....	Coaticook.....	46.6	49.4	48.1	48.8	50.2
S. Bachand.....	".....	46.6	55.0	35.6	.....	.....
H. R. Standish.....	Magog.....	46.9	47.3	45.5	48.0	47.3
O. Ratte.....	Cherry River.....	47.0	51.1	48.5	48.5	.....
H. J. Lee.....	Sutton.....	47.0	.....	.....	.....	.....
J. J. Vanasse.....	Wickham West.....	47.0	53.1	56.8	52.9	.....
J. A. Lapierre.....	Bromptonville.....	47.5	42.0	.....	.....	52.1
W. S. Purdy.....	South Stukely.....	47.5	56.4	.....	54.3	.....
E. H. Hunter.....	Stanbridge East.....	47.6	50.9	43.5	.....	.....
John McCrum.....	Iron Hill.....	47.9	49.2	45.5	43.9	43.3
Juaire & Dussault.....	Knowlton.....	48.1	48.5	46.2	49.8	47.1
Berard Frères.....	Dunham.....	48.4	50.0	47.5	.....	47.8
M. Curley.....	".....	48.4	57.4	.....	.....	.....
B. Ryders.....	Fitch Bay.....	48.5	48.8	46.7	51.5	49.0
E. Theriault.....	Côte St. Joseph.....	48.5	53.6	.....	.....	.....
W. H. Stewart.....	Frontier.....	48.6	58.5	.....	51.0	49.2
J. W. McKay.....	North Hatley.....	48.8	52.8	46.3	43.7	48.4
J. L'Heureux.....	Kate Vale.....	49.0	54.2	50.5	51.8	56.3
W. W. Reed.....	North Hatley.....	49.0	.....	41.9	43.2	47.5
Lapierre Frères.....	Laroche.....	49.0	50.0	46.8	49.4	52.9
Rev. Tremblay.....	St. Hermenegilde.....	49.0	53.1	41.5	45.3	47.4
Stewart & Fournier.....	Hemmingford.....	49.0	60.0	45.3	50.8	56.6
E. A. Baldwin.....	Stanstead.....	49.4	.....	.....	.....	.....
Griffin Creamery Association.....	Griffin (Stanstead).....	49.5	.....	.....	.....	.....
H. J. Allen.....	West Sheffield.....	49.5	50.2	46.6	47.7	47.1
A. Laubier.....	St. Evariste.....	50.0	51.3	51.7	.....	.....
J. A. Vinet.....	St. Remi.....	50.0	55.5	53.5	48.3	49.4
A. E. Fish.....	Ayers Cliff.....	50.2	.....	49.4	48.0	51.0
J. L. Poupart.....	St. Remi.....	50.5	55.0	50.0	55.6	58.0
J. Carson.....	Geraldine.....	50.5	.....	.....	.....	.....
G. A. Robb.....	Warden.....	50.5	48.6	50.0	51.5	51.7
O. Lacombe.....	St. Evariste.....	50.6	51.3	52.0	.....	.....
E. Berard.....	Johnville (Compton).....	50.6	.....	.....	.....	.....
Henry Purdy.....	Melboro.....	51.0	47.5	48.8	48.5	.....
B. Converse.....	Barnston Corner.....	51.4	50.9	48.2	49.5	53.6
W. Winter (Aberdeen 1).....	Ornstown.....	52.0	.....	.....	.....	.....
W. K. Baldwin.....	Baldwin's Mills.....	52.5	54.0	43.6	.....	.....
S. Leduc.....	Haseville.....	52.6	55.0	.....	.....	.....
W. Lacasse (W. L.).....	St. Etienne de Bolton.....	52.9	52.3	52.0	.....	.....
Oct. Roy (R. 3).....	St. Ephrem de Tring.....	53.0	57.3	49.1	.....	.....
H. Leduc.....	North Stanbridge.....	53.2	54.5	51.3	.....	.....
Joseph Beaudin.....	Franklin Centre.....	53.2	42.5	48.0	47.2	51.2
W. Lacasse (H. 241).....	St. Etienne de Bolton.....	53.5	.....	.....	51.2	.....
Morrison & Bowen.....	Hatley East.....	54.0	52.0	50.5	50.0	52.1
W. Winter (Aberdeen 2).....	Ornstown.....	54.0	.....	.....	.....	.....
A. A. Ayer.....	Frelighsburg.....	54.0	51.0	52.8	.....	.....
E. Poirier.....	St. Michel de Napierville.....	54.0	60.0	52.3	.....	.....
E. Normand.....	Kingscroft.....	54.2	.....	47.5	44.2	48.3
Noel Masse.....	St. Ephrem de Tring.....	54.6	56.9	54.8	.....	.....
E. Bonneau.....	North Stanbridge.....	54.6	51.7	.....	.....	.....



1 GEORGE V., A. 1911

TABLE No. II.—Average Temperature of Creamery Butter at Shipping Points in the Province of Quebec for Five Years, 1905 to 1909—*Continued.*

Name of Proprietor or Manager.	Post Office Address.	YEARS.				
		1909.	1908.	1907.	1906.	1905.
		Deg.	Deg.	Deg.	Deg.	Deg.
Oliver & Goldie. ....	Rockburn. ....	55.0	50.5	.....	.....	47.3
J. E. Dion. ....	St. Evariste. ....	55.3	64.0	50.6	.....	.....
Oct. Roy (12 C). ....	St. Ephrem de Tring. ....	55.3	56.7	54.8	.....	.....
J. L. Poupart. ....	St. Isidore. ....	55.5	.....	.....	53.0	61.3
Oct. Roy (L. P. 27). ....	St. Ephrem de Tring. ....	56.0	55.7	56.3	.....	.....
Raboin & Raboin. ....	Compton. ....	56.2	53.6	49.8	42.6	43.3
Fred. L. Fall. ....	Huntingdon. ....	58.0	43.3	.....	56.6	49.3
Fredette & Painchaud. ....	Sherrington. ....	62.0	57.4	52.3	52.6	55.0
S. Raboin. ....	St. Edwidge. ....	65.5	51.8	51.4	.....	.....

On October 14, the following circular was sent to all the names in tables 1 and 2, and it is encouraging to note that as a result a considerable number of creamery owners applied to this branch for plans and specifications and that during the past winter they built modern cold storage rooms in their creameries.

DOMINION DEPARTMENT OF AGRICULTURE—BRANCH OF THE DAIRY AND COLD STORAGE COMMISSIONER.

OTTAWA, October 14, 1909.

DEAR SIR,—You are no doubt aware that for several years past this department has arranged with the different railway companies for a special weekly iced car service for the carriage of butter to Montreal during the period of warm weather. Inspectors have been employed by the department to travel with these cars so as to ensure a proper service, and to take notes of the temperatures of the butter as shipped at the various railway stations.

In looking over the average temperatures for each creamery for five years past, we find in quite a number of cases that the temperature of the butter at the shipping point has been lower each succeeding year. This gratifying state of affairs is the result of the construction of new cold storage rooms, the improvement of old ones and of more care in the management of the cold storages generally.

We regret to find, however, that many of the creameries have made no progress, and some of them have been retrograded in this important matter of the storage of their butter. In this connection we wish to impress upon you the fact that the refrigerator cars are not for the purpose of cooling warm butter, but that they are intended to carry to its destination, in good condition, butter that is at a proper temperature when loaded in the cars.

At the close of the season every creamery manager should carefully overhaul his cold storage and see that everything is put in good shape. The walls should be carefully washed, then dried and whitewashed. The washing will be more effective if it is done with a solution consisting of one part of bi-chloride of mercury to 1,000 parts of water, because such treatment will effectually destroy all mould or spores of mould and thus lessen the danger of having mouldy butter, and at the same time prevent decay in the structure of the cold storage.

Then it is important to see that a good supply of ice is stored this winter. By keeping and shipping your butter at a low temperature, you will derive both satisfaction and profit, besides enhancing the general reputation of Canadian butter.



## SESSIONAL PAPER No. 15a

Below you will find the average temperatures of the packages of butter from your creamery that have been tested by our inspector in the years named.

(Year)	1909.	1908.	1907.	1906.	1905.	
Temp.	.. ..	....	....	....	....	degrees.

For full details of refrigerator car services, temperatures of butter at different points, &c., see the report of the Dairy and Cold Storage Commissioner just issued, which will be sent to any person on application to the undersigned.

Any creamery which has not already done so may secure a bonus of \$100 by erecting a cold storage according to plans and specifications supplied free of cost on application to this office.

J. A. RUDDICK,  
Commissioner.

W. W. MOORE,  
Chief, Markets Division.

TABLE NO. III.—Average Temperature of Creamery Butter at Shipping Points in the Province of Ontario, Season 1909.

(H. G. Shufelt, Inspector.)

Proprietor or Manager.	Post Office Address.	Shipping Station.	Railway.	Number of Packages Tested.	Average Temperature.
					Deg.
J. Wilson .....	Fergus .....	Fergus .....	G.T.R. ....	5	47.8
F. A. Keyes .....	Bluevale .....	Bluevale .....	" .....	11	48.1
L. O. Jackson .....	Mitchell .....	Mitchell .....	" .....	4	48.5
H. O. Henderson .....	Whitechurch .....	Whitechurch .....	" .....	5	49.2
A. G. Calder .....	Winthrop .....	Seaforth .....	" .....	14	49.8
John Irving .....	Milton .....	Milton .....	C.P.R. ....	6	49.8
J. J. Wincel .....	Neaustadt .....	Neaustadt .....	G.T.R. ....	6	49.8
W. G. Meid .....	Winchelsea .....	Exeter .....	" .....	13	50.4
S. H. Scott .....	Exeter .....	" .....	" .....	7	50.7
W. Waddell .....	Kerwood .....	Kerwood .....	" .....	4	51.0
W. Parker .....	Merlin .....	Merlin .....	P.M.R. ....	6	51.0
McInnis & Co. ....	Tiverton .....	Kincardine .....	G.T.R. ....	3	51.7
A. E. Ord .....	" .....	" .....	" .....	11	52.0
H. E. Wilson .....	Keyser .....	Kerwood .....	" .....	2	52.5
Underwood Butter and Cheese Co. ....	Underwood .....	Port Elgin .....	" .....	5	52.8
J. H. Graham .....	Elmvale .....	Elmvale .....	" .....	6	53.5
Paisley Creamery Co. ....	Paisley .....	Paisley .....	" .....	4	53.8
G. M. Kerry .....	Petrolia .....	Petrolia .....	" .....	7	54.0
J. H. Allan .....	Wheatley .....	Wheatley .....	P.M.R. ....	8	58.6
J. A. Ireland .....	Ridgewood .....	Ridgewood .....	" .....	2	60.5
Lampton & Co. ....	Petrolia .....	Glencoe .....	G.T.R. ....	5	61.2
T. A. Moore .....	Grand Valley .....	Grand Valley .....	C.P.R. ....	3	62.3

In 1908 the lowest average temperature was 47.5 degrees and the highest 73.3 degrees; in 1907 the lowest average was 41.3 degrees and the highest 61.3 degrees.

Table No. IV. shows the temperature of marked packages of dairy and of creamery butter both in Ontario shipping points and at Toronto, and table No. V. temperatures of dairy and creamery butter at Ontario shipping points and at Montreal. The packages that were tested by the inspector at the railway stations were marked by him so that they could be picked out and retested when they were removed from the cars at Toronto and at Montreal.



TABLE NO. IV.—Temperature of Ontario Butter at Shipping Points and at Toronto, Season 1909.

DAIRY BUTTER ONLY.	
Number of Cars.. . . .	9
No. of packages tested at Shipping Points and at Toronto.. . . .	51
Average Temperature at Shipping Points.. . . .	65.4 degrees.
Average Temperature at Toronto.. . . .	62.0 “
<hr/>	
Reduction in Temperature.. . . .	3.4 “

CREAMERY BUTTER ONLY.	
Number of Cars.. . . .	13
No. of packages tested at Shipping Points and at Toronto.. . . .	63
Average Temperature at Shipping Points.. . . .	52.9 degrees.
Average Temperature at Toronto.. . . .	51.1 degrees.
<hr/>	
Reduction in Temperature.. . . .	1.8 degrees.

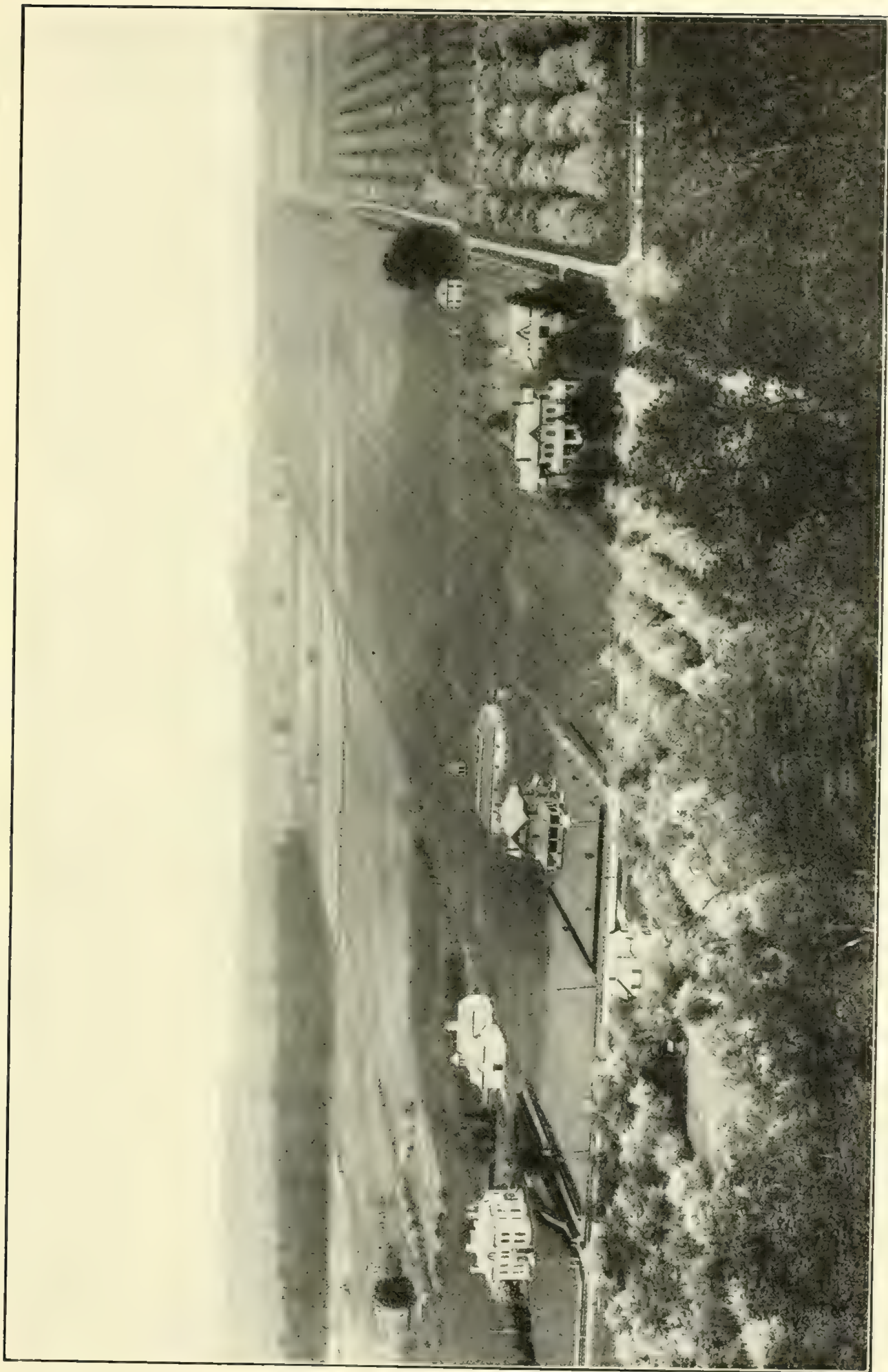
TABLE NO. V.—TEMPERATURES OF ONTARIO BUTTER AT SHIPPING POINTS AND AT MONTREAL, SEASON, 1909.

DAIRY BUTTER ONLY.	
Number of Cars.. . . .	12
No. of packages tested at Shipping Points and at Montreal.. . . .	73
Average Temperature at Shipping Points.. . . .	61.9 degrees.
Average Temperature at Montreal.. . . .	52.2 degrees.
<hr/>	
Reduction in Temperature.. . . .	9.7 degrees.

CREAMERY BUTTER ONLY.	
Number of Cars.. . . .	2
No. of packages tested at Shipping Points and at Montreal.. . . .	4
Average Temperature at Shipping Points.. . . .	51.8 degrees.
Average Temperature at Montreal.. . . .	48.8 degrees.
<hr/>	
Reduction in Temperature.. . . .	3.0 degrees.

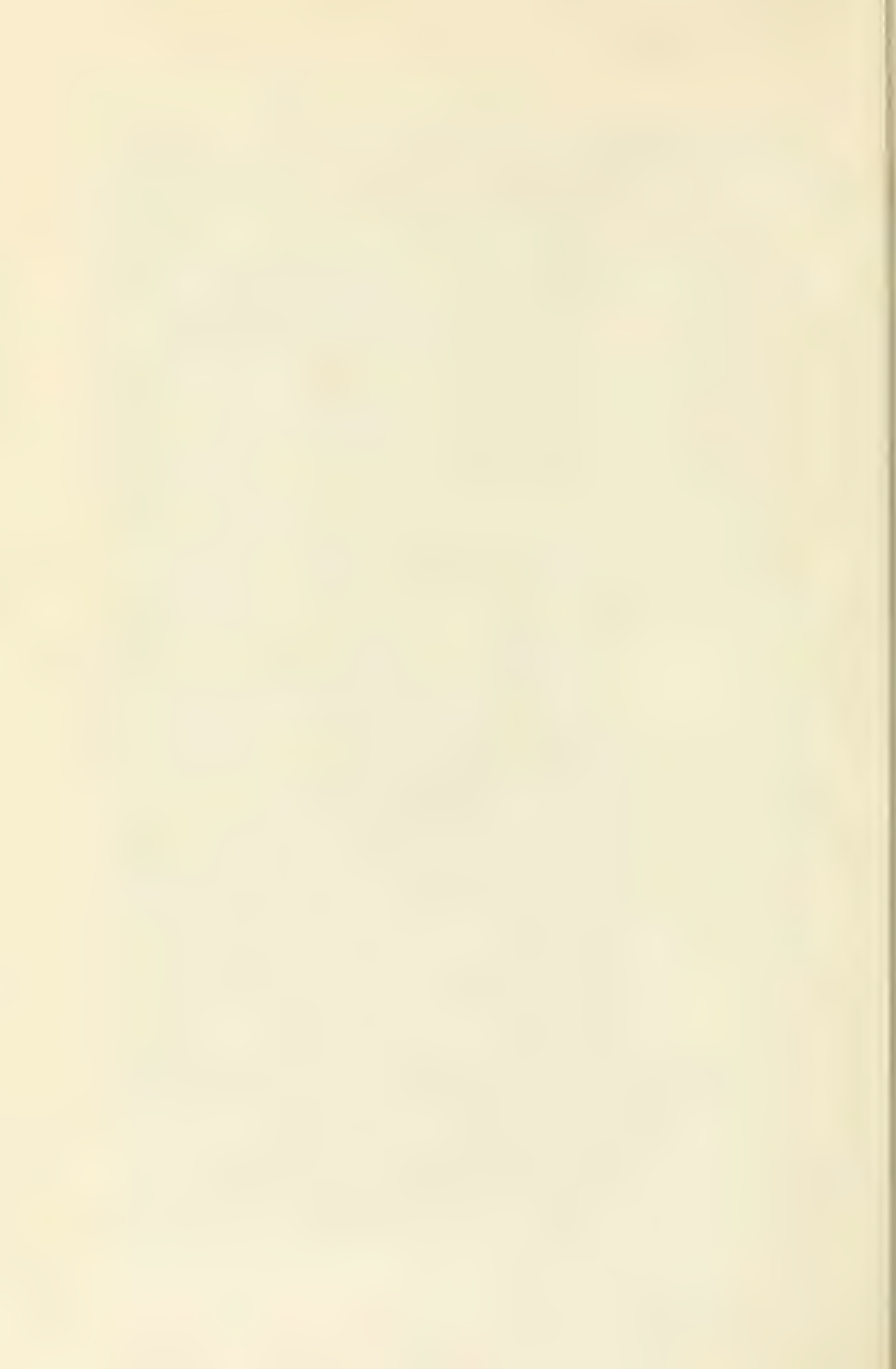
Table No. VI. gives the average temperatures of all marked packages of butter that were tested by inspectors at shipping points in Ontario and Quebec and that were re-tested at Montreal.



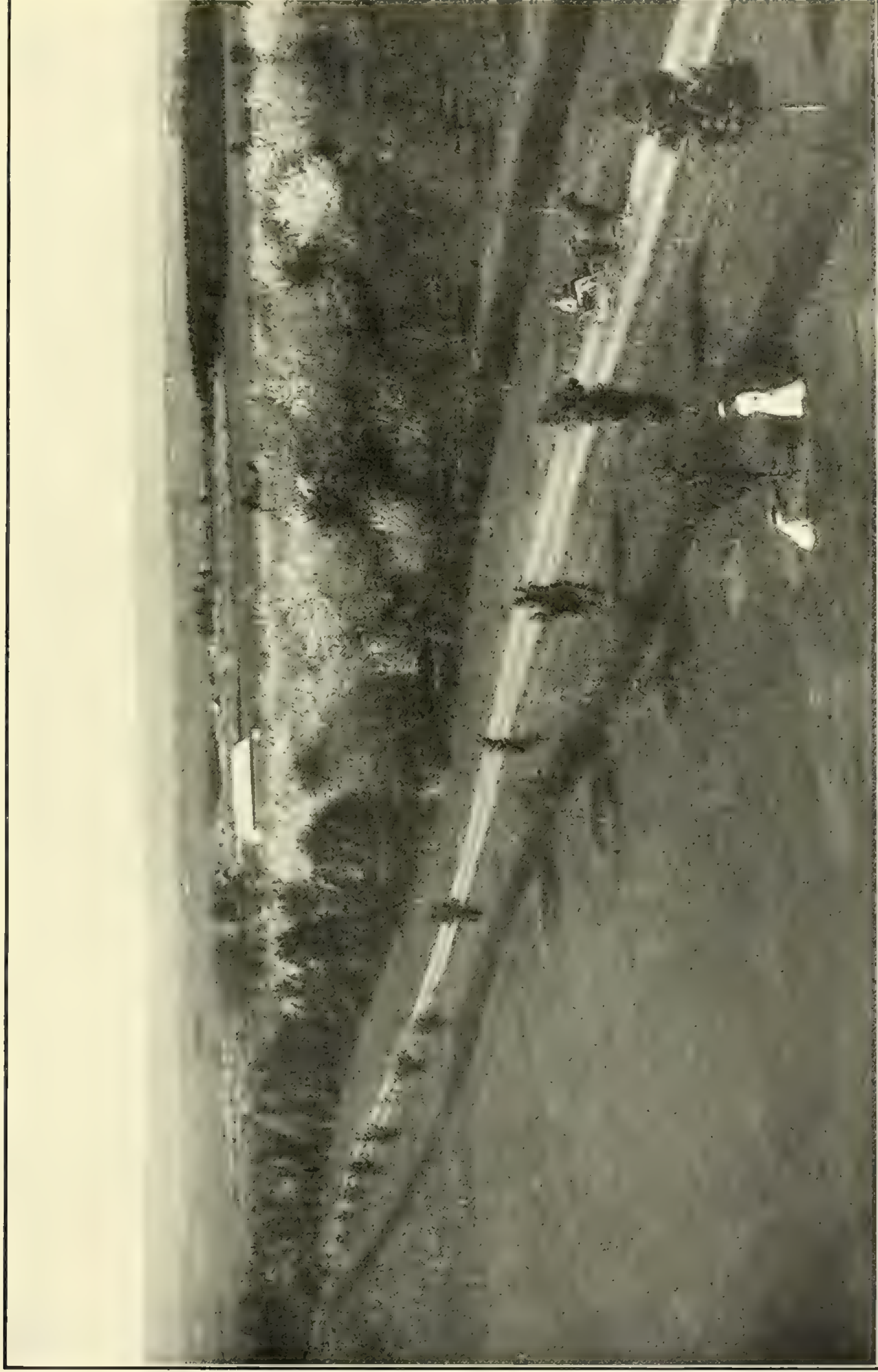


A view from the mountain, near Grimsby, Ont.



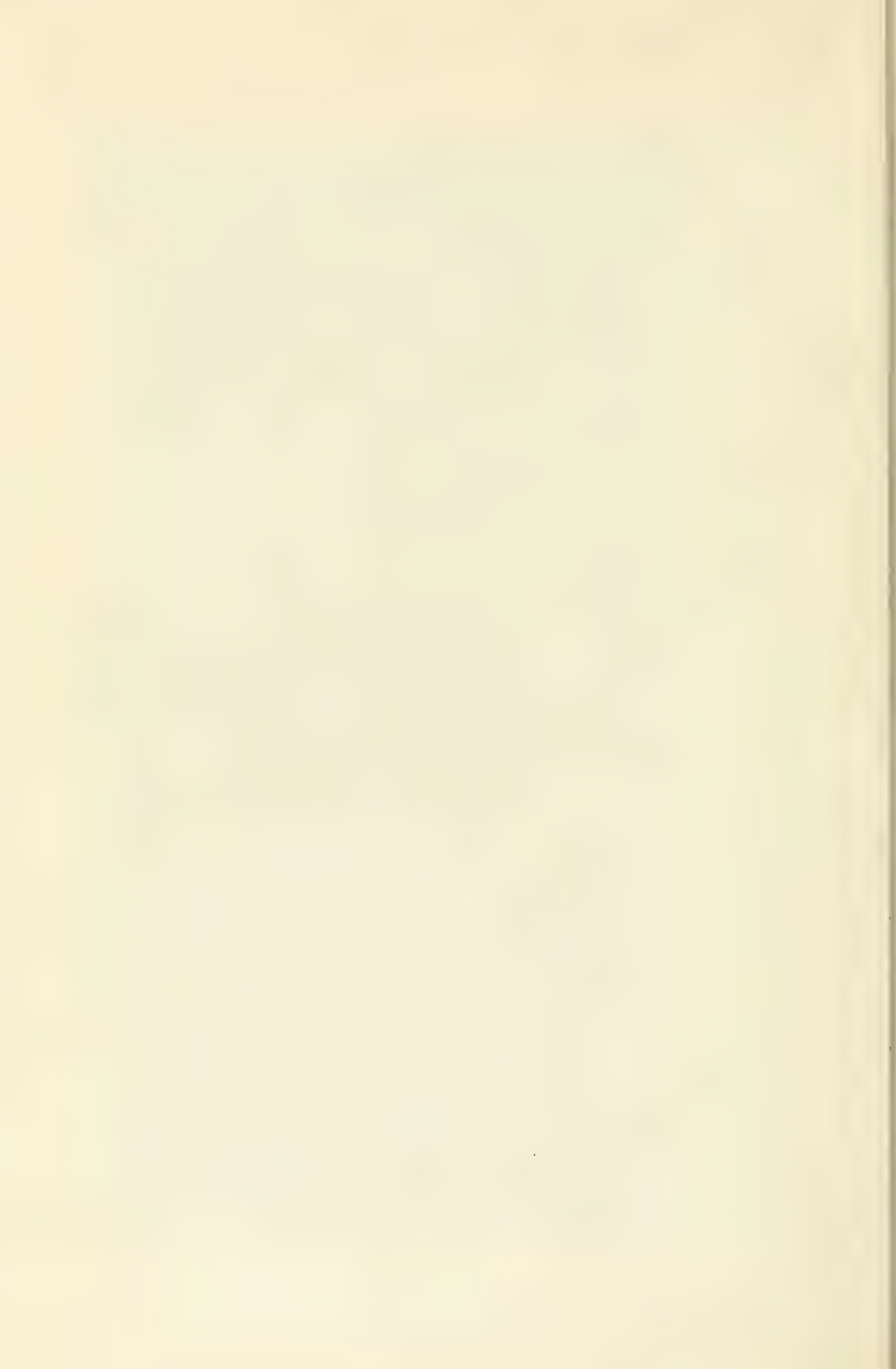






A view near Kentville, N. S.







SESSIONAL PAPER No. 15a

TABLE NO. VI.—Temperatures of Ontario and Quebec Butter at Shipping Points and at Montreal, Season 1909.

	Number of Cars with Marked Packages.	Number of Packages Tested at Shipping Points and at Montreal.	Average Tempera- ture at Shipping Points.	Average Tempera- ture at Montreal.	Increase in Tempera- ture.	Reduction in Tempera- ture.
			Deg.	Deg.	Deg.	Deg.
Ontario via C. P. R. ....	3	19	61.8	52.5	.....	9.3
" G. T. R. ....	7	39	59.1	50.5	.....	8.6
" P. M. R. ....	2	19	66.0	54.8	.....	11.2
Quebec (north of St. Lawrence) via C. P. R. ....	11	189	54.4	51.9	.....	2.5
Quebec (south of St. Lawrence) via C. P. R. ....	34	268	48.9	49.9	1.0	.....
Quebec via G. T. R. ....	15	187	50.8	52.3	1.5	.....
" I. C. R. ....	11	200	52.9	51.3	.....	1.6
" Q. C. R. ....	3	26	54.2	54.1	.....	0.1
" C. V. R. ....	3	27	48.7	52.7	4.2	.....
" Q. M. & S. ....	5	39	56.4	54.1	.....	2.3
" C. N. & R. ....	8	55	55.6	55.3	.....	0.3
Totals. ....	102	1,068				
General average ....			52.6	51.7	.....	0.9
Season 1908, general average ....			54.9	54.4	.....	0.5
" 1907, " " ....			51.3	50.5	.....	0.8
" 1906, " " ....			52.6	53.2	0.6	.....
" 1905, " " ....			54.4	54.5	0.1	.....

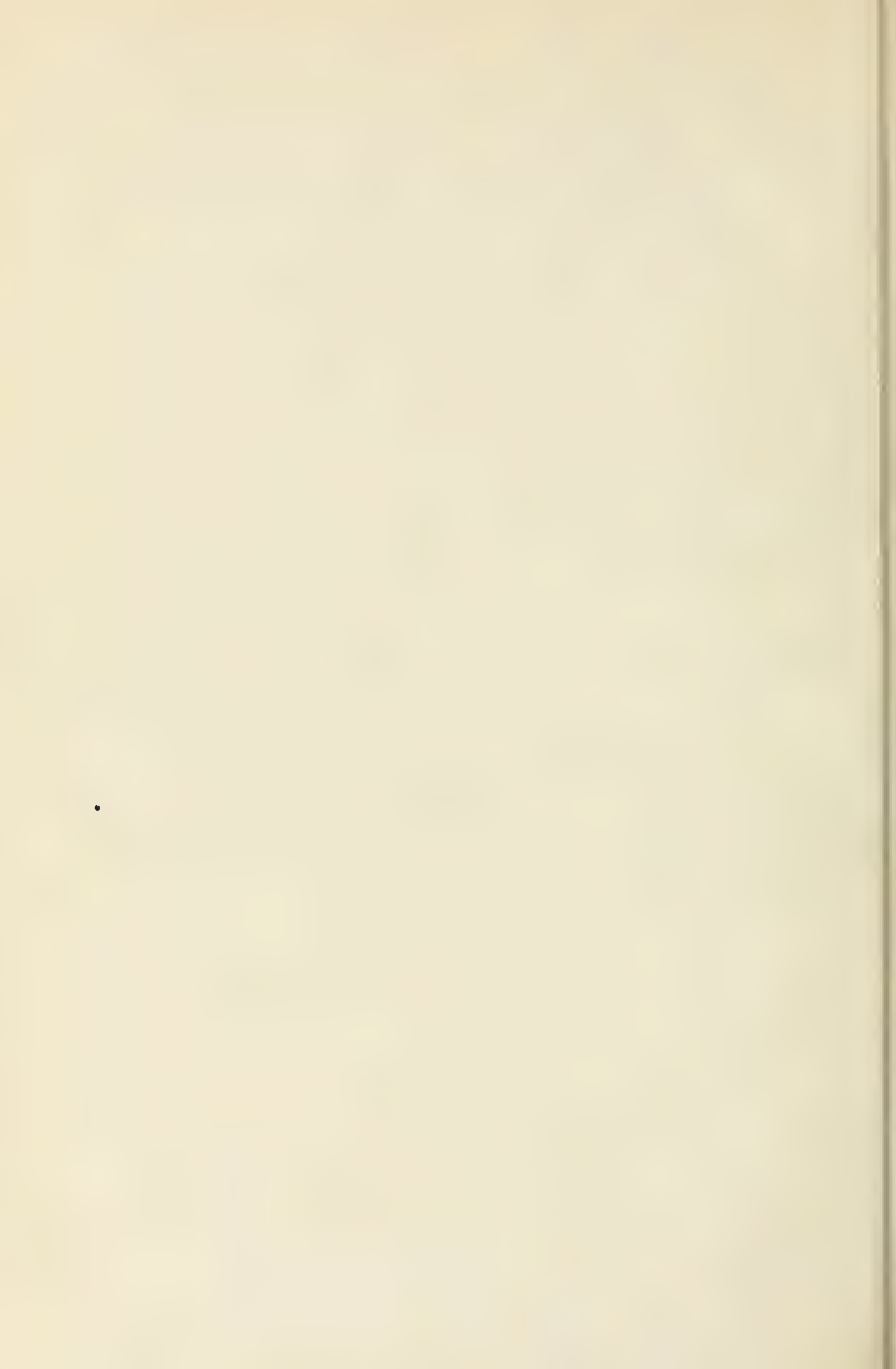
## ACKNOWLEDGMENTS.

In concluding this report I wish to thank the employees of this division for their loyal and devoted service during the year; the steamship agents at ports in Canada and in Great Britain for their kindness and courtesy to our inspectors, and the importers of dairy products and fruit in England and Scotland for information so freely furnished our cargo inspectors during the year and for their letters expressing their views regarding the season's trade.

I have the honour to be, sir,  
Your obedient servant,

W. W. MOORE,  
Chief, Markets Division.

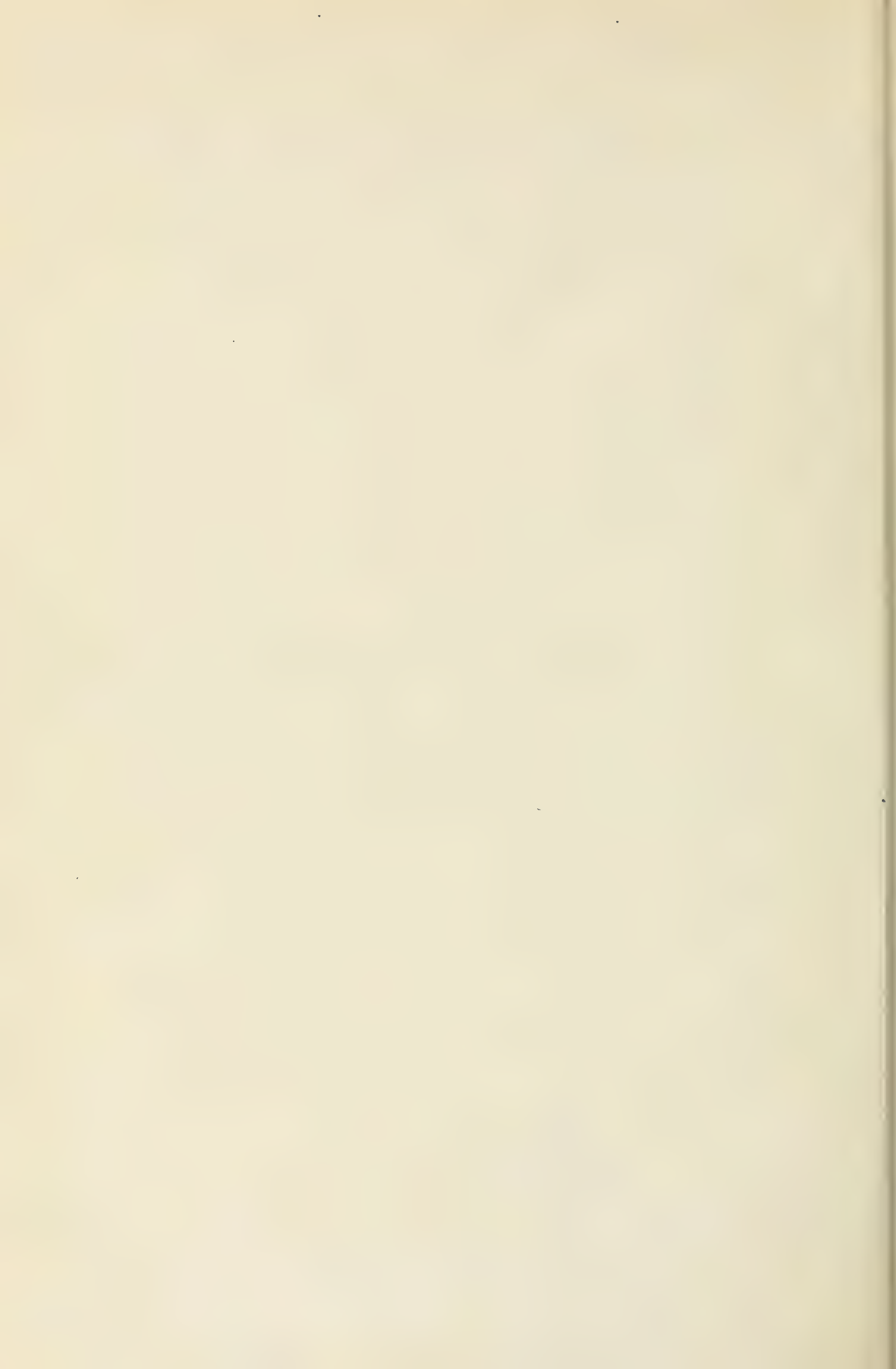






## PART III.—FRUIT







### PART III.—FRUIT.

#### FROM THE CHIEF OF THE FRUIT DIVISION, TO THE DAIRY AND COLD STORAGE COMMISSIONER.

SIR,—I have the honour to submit a report of the work of the Fruit Division for the year ending March 31, 1910.

#### THE ENFORCEMENT OF THE INSPECTION AND SALE ACT, PART IX.

##### THE STAFF OF INSPECTORS.

The staff during the year under review consisted of twelve permanent inspectors and sixteen who were employed for about six months during the busy season. Three permanent and two temporary inspectors were added to the staff during the year, and by an arrangement with the Department of Customs, officers of that department at Nelson and at Grand Forks, B.C., have been appointed as fruit inspectors for the special duty of enforcing the law in connection with the fruit imported from the United States.

A re-arrangement of the staff of inspectors in 1909 provided for three additional inspectors in the prairie provinces, who were assigned as follows:—One as assistant inspector at Winnipeg; another for Regina and district, and a third one for Lethbridge and district. This permitted the inspector at Calgary to confine his work largely to the district between Calgary and Edmonton.

##### PECULIARITIES OF THE SEASON.

The year was marked by peculiarities that called for special attention and introduced certain difficulties into the work. The system of contracting early in the season, before a proper estimate can be made of the crop, resulted in the offering of high prices early in the season to the growers, and the storing by apple operators of a large quantity of apples quite unfit for the purpose, it being anticipated by the buyers that the crop of winter fruit would be only a moderate one, or perhaps a small one. It turned out to be rather above the average. The effect, so far as the inspection work was concerned, was in the temptation, irresistible to many holders of fruit, of trying to make up for the prices being lower than were expected, by grading their apples higher than the quality would justify.

##### QUALITY AND GRADING IN THE LAKE HURON DISTRICT.

Another disturbing element was the very large crop of apples in the Lake Huron counties of Ontario. There is an orchard in this district on almost every farm, primarily planted for home use. The surplus is given very little attention. The orchards are usually poorly cared for, and a very large proportion of the fruit is of inferior grades. A number of small buyers who had no intention, apparently, of doing more than selling out their options to some of the larger dealers, attempted to so brand their fruit that it could be shipped as No. 1 grade. Much of this fruit reached the Northwest as well as the markets of Great Britain during the month of November, with the result that the market prices were seriously affected not only by the surplus of low grade fruit, properly marked, but also by the large quantity of fruit that was fraudulently marked. Our inspectors were active in detecting much of this fraudulently



1 GEORGE V., A. 1911

marked fruit; and the increased number of convictions in Ontario originated almost wholly in this section of the province.

The result as a whole will no doubt be eminently beneficial. The large crop of apples has shown the farmers the possibilities of their orchards, and the prosecutions that have taken place and the convictions that have been secured have shown them the necessity for proper grading. No doubt, in future, the farmers will appreciate the necessity of spraying and pruning in order to be able to sell their apples at a profit.

#### CONDITIONS IN NOVA SCOTIA.

Another large field of operation was the Annapolis Valley in Nova Scotia. The problem there is even more difficult than in Ontario. In Ontario the inspectors have to deal, for the most part, with apple operators who are in the business from year to year, and who, from the magnitude of their operations, have a comparatively large experience in packing. In Nova Scotia there is still a great deal of packing being done by the growers of the fruit. Many of these, of course, grow but a small quantity, and it is needless to say that in every community there are those who are not progressive. When such men undertake to pack their own apples, it is exceedingly difficult to secure conformity to such a law as the Inspection and Sale Act. Although it is a principle in law that no man can plead ignorance as an excuse, yet in actual practice it is found impossible to enforce the Inspection and Sale Act rigidly, especially in the case of a first offence and where there are only a few barrels involved. These are the conditions in Nova Scotia, and though many farmers have been fined this year, it was found difficult to secure convictions in a large number of cases where there was no intention to defraud and where the most that could be urged was ignorance or carelessness.

#### THE ACT WELL OBSERVED IN BRITISH COLUMBIA.

In British Columbia fruit growing is for the most part in the hands of those who are making a business of it, and of men who are much above the average in intelligence. Consequently there are comparatively few breaches of the Inspection and Sale Act to report in British Columbia.

#### IMPORTED FRUIT CORRECTLY MARKED.

Probably owing to the precautions taken in appointing inspectors at Nelson and Grand Forks and increasing the staff in the Northwest, very few violations of the law were reported in the case of imported fruit in the western provinces.

#### IMPROVEMENT IN QUALITY OF FRUIT GOING TO THE WEST.

It is satisfactory to note that, notwithstanding the quality of the fruit, particularly in western Ontario this year, the general consensus of opinion among the merchants is that the quality of fruit shipped into the western provinces was as good this year as ever before, if not better. There is still need of much improvement, which in all probability will come, though slowly, partly as the result of a continued stringent inspection and partly as the result of the trade being developed along co-operative lines at the point of production.

#### INSPECTION AT THE POINT OF PRODUCTION.

The plan of inspecting in the orchards and at the point of shipment was continued this year to an even greater extent than last. Mr. Bryan in the Lake Huron district, and Messrs. Furminger, Carey and Rutherford in the southern and eastern portions of Ontario, were engaged in this work during the whole of the orchard shipping season. The results were not more satisfactory than last year. Indeed, the



## SESSIONAL PAPER No. 15a

results of this inspection have been altogether different from what was anticipated by those who asked for orchard inspection. It was anticipated by many shippers that it would be possible to have fruit inspected at Ontario points and delivered in the Northwest with practically a government guarantee of the fruit. This was found to be impossible.

The work of the inspectors in the orchards and at the shipping points was of a dual character. In the first place, they detected many cases of fraudulently packed fruit. These were reported and convictions were secured later. Perhaps the most important part of their labour was the instruction which they gave with reference to the Inspection and Sale Act, and the packing of fruit in barrels, as well as much general information regarding orchard culture. It is probable, too, that the presence of an inspector in the neighbourhood had a deterrent effect quite beyond his ability or opportunity to inspect.

It may be well to note here the difficulties that render it impossible, with the present conditions, for the government officials to guarantee any particular lot of fruit. The apples are shipped from a large number of stations in single carloads, collected perhaps through several days and, it may be, at different stations. The fruit in any particular carload is not uniform, but is the joint production of several different gangs of packers, not working under any common supervision and not headed by workmen above the average in intelligence. As a result, any particular car will show very great variations in the quality of the grading. It would be impossible, therefore, to guarantee the car with reasonable safety without an examination of almost every individual barrel. Had all the barrels in any particular car been packed by one gang or under the supervision of some one man, so that some uniformity might be taken for granted, it would then be possible to inspect a certain percentage of the car and judge of the rest of the car by this percentage. Even in this case, it is likely that great dissatisfaction would arise when it was discovered that some of the barrels were not up to grade in cars passed by a departmental inspector upon the plan of examining only a percentage of the packages. It can readily be seen how definitely unsatisfactory would be any plan that attempted to grade a car packed by different gangs by simply examining a small percentage of the car.

It may be necessary to explain here that as a matter of commercial practice, cars are accepted upon the inspection of a comparatively small number of packages but even in the case of a commercial transaction, this has proved extremely unsatisfactory. Many complaints are made with reference to the want of uniformity in cars. Nevertheless, in actual practice the merchants have an opportunity of averaging one against another, and if one car proves worse than the specimens examined, it is quite probable that another will prove better; so that in the end the large merchants especially come out fairly even. But no such law of averages would work in the case of government inspection. The cars that were worse than the specimens examined by the Dominion fruit inspectors would very properly be denounced and repudiated by the receiver, and the cars that were better than the certificate of the inspector would be accepted, of course, but no rebates would be given for having received better quality than the certificate indicated. It will thus be seen that it would be necessary to examine almost every barrel in the car before dissatisfaction by the receiver could be avoided. Such an examination, of course, would be an intolerable burden upon the industry, which in the long run would have to bear the cost of it.

It would be impossible, also, to supply competent inspectors to do the work with sufficient promptness to meet the demands of the trade. An inspector working alone could not open, inspect and close more than six or eight barrels per hour. Making due allowances for the time taken to move from station to station, it will thus be seen that it would take an army of men to inspect the trainloads of apples that leave Ontario alone during the shipping season.



1 GEORGE V., A. 1911

## CHANGING THE FRUIT OR THE GRADE MARKS AFTER INSPECTION.

Another objection that has more weight than is usually attached to it is the fraudulent use which apple operators would make of this system if it were adopted. As a matter of practice, it is impossible to examine the fruit in a car already loaded for shipment. The temptation would be strong to take the barrels nearest the door; and fraudulently inclined shippers would not hesitate to see that the poorly graded fruit was loaded in inaccessible places and that the good fruit was placed conveniently for inspection. That this is not a mere supposition is proved from the fact that at the present time many shippers in loading a car that is liable to inspection at the point of shipment, in transit, or on its arrival at its destination, load their cars in this way. Our inspectors report that in order to determine the character of a car, they are obliged to unload the greater part of the car until they can get at the barrels in the out-of-the-way places.

We have reason to believe, too, that unless the officers of the department would take possession of the cars as soon as they were inspected and keep possession until the cars were delivered, there would be shippers unscrupulous enough to change the grade marks on the packages after the car had been inspected, so that they could palm off, under a government certificate, fruit that had never been inspected at all, or fruit contained in packages the grade marks on which were different from the grade marks seen by the inspector.

It would not be just for me to make a statement of this kind as a supposition. I may be excused, therefore, for giving the particulars of a case that actually occurred, which will show that there are good grounds for the assertions which I have made. Apples were inspected in a storehouse in Colborne, and were watched until a short time before they were loaded upon a car. Indeed, there is reason to believe that the shippers of the fruit seized the first convenient opportunity when the inspectors were not in the storehouse to load this fruit into a car. As it was loaded the original grade marks which were on the fruit when inspected by the Dominion fruit inspectors, mostly grades No. 2 and No. 3, were scraped off the barrels and No. 1 and No. 2 substituted. The car was sent on its way to Great Britain, via Boston, no doubt, with the hope that the alteration in the marks would not be detected until it had left the country. The local inspectors, however, obtained information which led them to believe that the marks had been tampered with. The car was intercepted at Coteau Junction, and examined by a Dominion fruit inspector. It was found that upon the particular lot of fruit referred to the marks had been changed. An information was laid against the owner of the fruit, a conviction was made, and the magistrate imposed a fine of \$100 and costs for this offence.

Another carload was discovered by the Dominion Cargo Inspector in Liverpool that showed evidences of the grade marks having been changed in the same way. Unfortunately, there was no ready way of securing a conviction in this case, as the offence was not discovered in Canada. But these facts illustrate how much care would have to be taken, and how much expense would have to be incurred, if any scheme of inspection at the point of shipment were undertaken by the department. As this expense would fall ultimately upon the fruit, it is not too much to say that the cost would in all probability absorb a large part of the profits that might be expected in the trade. It must be concluded, therefore, that up to the present time, there is no practical scheme of making an inspection at the point of shipment that will preclude the advisability of another inspection.



SESSIONAL PAPER No. 15a

INSPECTION STATISTICS.

Below are tables giving the statistics of inspection for the seasons 1908-9 and 1909-10:—

Variety.	No. of lots Inspected.	No. of pkgs. in lots Inspected.	No. of pkgs. Inspected.
1908-9			
Apples (bbls).....	5,940	682,657	42,223
" (boxes).....	248	100,792	2,701
Pears ".....	88	54,150	7,924
Peaches ".....	91	140,976	16,005
Plums (baskets).....	54	16,505	1,474
Tomatoes ".....	53	11,381	779
Small fruits (quarts).....	863	1,184,051	154,874
1909-10.			
Apples (bbls).....	7,736	859,572	63,232
" (boxes).....	902	157,939	7,363
Pears ".....	248	41,459	2,738
Peaches ".....	410	60,248	3,817
Plums (baskets).....	264	62,883	4,257
Tomatoes ".....	149	50,043	3,241
Apricots (boxes).....	11	12,495	481
Small fruits (quarts).....	2,491	2,310,264	240,751

CONVICTIONS IN 1909-10.

The total number of convictions under the Inspection and Sale Act, Part IX., for the season 1909-10 has been 216. The names and addresses of the persons convicted under the Act for this season are given below:—

Ontario:	
H. A. Adams.. . . .	Hawkestone.
E. P. Ainsworth.. . . .	Brighton.
Jesse Allin.. . . .	Holbrook.
Amabel & Arran Fruit Growers' Assn.	Allenford.
J. G. Anderson.. . . .	Lucknow, (7 convictions).
Arran Fruit Growers' Assn.. . . .	Port Elgin (2 convictions).
Alfred Baeker.. . . .	Brussels (4 convictions).
Chas. Baynton.. . . .	Bothwell.
H. O. Bickle.. . . .	Brooklin.
John Bierwirth.. . . .	Elmwood.
Jas. Blackstock.. . . .	Collingwood.
Thos. Brain.. . . .	Oakville.
Albert Brent.. . . .	Port Perry.
Adam Brown.. . . .	Owen Sound (5 convictions).
Jas. Brown.. . . .	Clinton.
J. A. & E. Brown.. . . .	Port Hope (2 convictions).
T. F. Cain.. . . .	Lucknow (2 convictions).
A. C. Caldwell.. . . .	Dundas.
Duncan Cameron.. . . .	Ripley.
D. Cantelon.. . . .	Clinton (8 convictions).
C. F. Chase.. . . .	Frankford.
Thos. H. Cheer.. . . .	Brighton.
L. O. Clifford.. . . .	Oshawa.
Thos. Conlin.. . . .	Whitby.
Robert Conn.. . . .	Heathcote.
Adam Cook.. . . .	Acton.
S. Cowan.. . . .	Palmerston.
Jas. Coyle.. . . .	Colborne.
John Coyle.. . . .	Colborne (3 convictions).
Robert Coyle.. . . .	Colborne (3 convictions).
W. H. Davis.. . . .	Duntroon.
John Denholm.. . . .	Blyth (7 convictions).
Dickson & Clark.. . . .	Brighton.



## Ontario—Continued.

Levi Dudley..	Whitby.
S. G. Dudley..	Colborne.
J. P. Dunn..	Streetsville.
Geo. Dyce..	Meaford.
Ira Edwards..	Colborne (3 convictions).
E. E. Elliott..	Woodstock,
R. Elliott..	Goderich.
R. R. Elliott..	Goderich.
J. W. Emerson..	Dunnville.
T. H. Everson..	Oshawa.
J. H. Fleming..	Kincardine (2 convictions).
G. Fothergill..	Belgrave.
J. C. Fuller..	Forest.
R. J. Graham..	Belleville.
W. Grierson..	Thornbury.
D. F. Hamlink..	Goderich (3 convictions).
W. J. Hamm..	Newcastle.
J. L. Hammond..	Crosshill (2 convictions).
David Hanniwell..	St. Davids.
Wm. Heidemann..	Shakespeare (7 convictions).
W. J. Henders..	Port Perry (2 convictions).
W. S. Holmes..	Lucknow (2 convictions).
Chas. Hunt..	Thornbury.
Ilderton Fruit Growers' Assn..	Ilderton.
Wm. Jenkins..	Clinton.
John Joynt..	Lucknow (4 convictions).
A. L. Kent..	Oakville.
W. R. Kent..	Delhi.
R. O. Ronkle..	Beamsville.
R. S. Lang..	St. Mary's (3 convictions).
Lemon Bros..	Owen Sound (3 convictions).
W. H. Lobb..	Clinton.
Lougheed Bros..	Clarksburg.
John McGuire..	Porter's Hill.
A. R. McKenzie..	Centreton (2 convictions).
H. McQuillin..	Lucknow (4 convictions).
C. W. Matthews..	Kerrwood.
D. C. Matthews..	Colborne.
F. G. Matthews..	Colborne (5 convictions).
Mitchell & Auld..	Watford.
G. A. Morris..	Gore Bay.
Wm. Nash..	Stony Creek.
Geo. F. Ostrom..	Belleville.
S. Overholt..	Jordan.
Henry Pedwell..	Thornbury.
John Perrin..	London.
Phillips & White..	Frankford (2 convictions).
Prentice & Sproule..	Collingwood.
R. Robinson..	Collingwood.
R. J. Ross..	Brighton.
John Shelton..	Ingersoll.
C. Sleep..	Port Perry.
R. D. Sloan..	Blyth.
Geo. Smith..	Delhi.
J. A. Snelgrove..	Brighton (5 convictions).
W. Stanley..	Holmesville.
J. M. Steel..	Clarksburg.
A. J. Stephenson..	Glen Oak (2 convictions).
Stewart Bros..	Kincardine (4 convictions).
J. Tasker..	Niagara-on-the-Lake.
R. Taylor..	Collingwood.
E. A. Trotter..	Grafton.
G. T. Turnbull..	Seaforth (2 convictions).
M. Unger..	Preston.
Vair & Gosling..	Barrie.
W. S. Vallean..	Owen Sound (2 convictions).
Andrew Vandewater..	Chisholm.
Wm. Varley..	Lucan.
Geo. Vivian..	Mitchell (4 convictions).
C. A. Watts..	Thamesville.
Watts Bros..	Port Dover.
Arthur Weaver..	Squires.
G. Wellington..	Forest.



## SESSIONAL PAPER No. 15a

## Ontario—Continued.

W. H. Whitesides..	..	..	..	..	..	Ravenna.
H. Williams..	..	..	..	..	..	Clinton.
D. D. Wilson..	..	..	..	..	..	Seaforth.
F. L. Wilson..	..	..	..	..	..	Colborne.

## Nova Scotia:

Walter Aylward..	..	..	..	..	..	Falmouth.
Fred. Banks..	..	..	..	..	..	Clarence.
J. D. Bennett..	..	..	..	..	..	Delhaven.
H. Bligh & Sons..	..	..	..	..	..	Cambridge.
W. L. Borden..	..	..	..	..	..	Lower Canard.
H. Brown..	..	..	..	..	..	Windsor.
Craig Caldwell..	..	..	..	..	..	Cambridge.
W. H. Chase..	..	..	..	..	..	Wolfville.
Mrs H. T. Chesley..	..	..	..	..	..	Bridgetown.
B. F. Chesley..	..	..	..	..	..	Clarence.
S. B. Chute..	..	..	..	..	..	Berwick.
J. Dykens..	..	..	..	..	..	Wolfville.
E. D. Ells..	..	..	..	..	..	Kingsport.
D. Goucher..	..	..	..	..	..	Melvorn Square.
J. S. Marshall..	..	..	..	..	..	Kingston.
D. A. Morton..	..	..	..	..	..	Billtown.
W. L. Newcomb..	..	..	..	..	..	Canning.
L. E. Parker..	..	..	..	..	..	Newport.
P. D. Phinney..	..	..	..	..	..	Granville.
W. W. Pineo..	..	..	..	..	..	Waterville.
W. G. Ritchey..	..	..	..	..	..	South Farmington.
J. Sexton..	..	..	..	..	..	Falmouth.

## Quebec:

F. H. Clark..	..	..	..	..	..	Montreal West.
A. Gravel..	..	..	..	..	..	St. Joseph du Lac.
T. S. Vipond & Co..	..	..	..	..	..	Montreal.
Geo. Vipond & Co..	..	..	..	..	..	Montreal.

## Manitoba:

Geo. Vipond & Co..	..	..	..	..	..	Winnipeg.
--------------------	----	----	----	----	----	-----------

## Alberta:

Royal Fruit Co..	..	..	..	..	..	Edmonton.
------------------	----	----	----	----	----	-----------

## British Columbia:

J. Y. Griffin & Co..	..	..	..	..	..	Nelson.
----------------------	----	----	----	----	----	---------

The fines in these cases aggregated \$2,980, which has been forwarded to the Receiver General for Canada.

It will be noted in this list that there are eighteen men who have been fined three times and over, twelve men who have been fined twice, and 109 who have been fined once. There are on this list only thirteen names of men who were fined last year. This indicates fairly clearly that the fraudulent packing is still largely the result of ignorance, and that the discipline of a fine produces good results.

On February 17 last, Dominion fruit inspectors examined certain barrels of Spy apples in the warehouse of Mr. Robert Coyle, of Colborne, marked No. 2 and No. 3. After these apples were loaded on the car, there was reason to believe that the grade marks had been changed. The car, after proceeding part of the way on its journey for export, was intercepted and examined, and it was found that the original grade marks, No. 2 and No. 3, had been erased and No. 1 and No. 2 respectively placed in their stead. For this offence the magistrate fined Robert Coyle \$100 and costs.

Attention is drawn to the fact that imported fruit must be marked as required by section 320 of the Inspection and Sale Act before being offered for sale. The Royal Fruit Company, Edmonton, and Messrs. J. G. Griffin & Co., Nelson, B.C., were convicted and fined for not complying with the Act in this respect.

## LARGE OPERATORS' DIFFICULTIES.

A large number of prosecutions are made in the case of apple operators who have gangs packing under their instructions. Apple picking and packing last but a



1 GEORGE V., A. 1911

few weeks, and while this work is going on it is pushed most strenuously. It is desirable, especially in the case of winter fruit, to leave the apples on the trees as long as possible to acquire colour, and yet, once having the colour, there is a grave danger of their being caught by an untimely frost; hence the haste to have them picked and stored. It is not remarkable, therefore, that all available labour, irrespective of its quality, should be pressed into service. In many cases the pickers and those who pack, have had no previous experience; nor is it to be wondered at that men who are unfit for any other service will be accepted at some figure for this work. There is always a dearth of labour at apple-picking time. Large dealers, who employ sometimes as many as thirty or forty gangs of men, have in the past been the victims of the careless, not to say fraudulent, practices of workmen who cannot be said to be in any sense of the word reliable.

#### PRINCIPALS HELD RESPONSIBLE FOR THEIR SUBORDINATES.

Nevertheless, the principals have in all such cases been held responsible for the work of their subordinates; and, as a consequence, many apple operators feel that the Inspection and Sale Act presses unduly upon them. Many of the more enterprising and better business men among them have accepted the situation and have added to their staff a number of independent overseers, who take no part in the work except to see that every carload that bears the brand of their employer is properly marked and graded. This is a new feature in marketing apples, and wherever it has been given a thorough trial it has been found to work satisfactorily. It adds, of course, to the cost of packing the apples, but this cost falls ultimately, as all legitimate costs must, upon the producers and consumers, and neither of these, nor indeed any one who has the true interests of the industry at heart, will object to the small increase in cost.

The more experience we have in the enforcement of the Inspection and Sale Act the more we are impressed with the necessity of holding the principals strictly to account for the work of their subordinates. An order in council, dated September 14, 1901, protects the principals by making it an offence punishable by a fine not exceeding \$50 for any workman to pack or mark apples fraudulently.

#### WANT OF DEFINITENESS IN CONTRACTS.

One of the evils of the trade is the want of a definite contract between the larger apple operators and the smaller buyers. There is frequently no written contract between these parties, and it is therefore, very difficult to tell who is the responsible party. Even where contracts are drawn, there is a want of definiteness upon this point.

#### A CONTRACT WITH INTENT TO DECEIVE.

Indeed, there is reason to believe that in some cases, at least, contracts have been drawn up so worded as to make it as indefinite as possible as to who is the owner at the time of packing. At the time of making this report, there is an appeal pending to determine a case of this kind.

#### FRUIT CROP REPORTS.

The fruit crop report was issued at the end of each month, beginning with May and ending with September. This feature of the work of the Fruit Division continues to be much appreciated by the fruit growers. Blank schedules are issued to about 3,000 correspondents; of these about one-half send in good reports. Care is taken to have the correspondents distributed evenly, so as to represent in number the importance of the fruit industry in every portion of the Dominion. The schedules are so constructed that not only the different kinds of fruit are reported upon, but all the standard varie-



## SESSIONAL PAPER No. 15a

ties of these kinds. This feature is of marked value, particularly in connection with apples. The reports of the correspondents are read carefully and the results printed the last day of each month. A synopsis is made of the reports, of convenient length for newspaper publication, and sent to all Canadian newspapers likely to be interested. Each edition of the fruit crop report consists of 10,000 copies, and the mailing list is being constantly increased.

## WEATHER CONDITIONS FOR 1909-10.

The weather conditions for the season of 1909 were particularly favourable for fruit. Practically no winter injuries were reported except from British Columbia, and a slight injury to the peach buds in the Niagara district. There still remained, however, enough buds in the Niagara district to insure a full crop of peaches. The winter injuries in British Columbia were exceptional, and though the actual damage done was not great, it was useful perhaps, inasmuch as it demonstrated, while the plantings were still small, where it was dangerous to plant tender fruits, in large quantities at least.

There were no late spring frosts to interfere with the setting of the fruit, and though the season was later than usual, the weather during the blossoming period was all that could be desired. Notwithstanding that there had been a fairly good crop of fruit two or three years in succession, the set of fruit for 1909 was heavy.

During the months of June and July the weather continued favourable, though with somewhat less precipitation than normal. The month of August was unusually dry, but this drought was broken by heavy storms towards the last of the month, bringing with them severe wind and hail storms. In southern Ontario, these caused heavy losses to a few individual growers; but the aggregate losses were not large.

September was a succession of warm days, but the nights were somewhat cool. Nevertheless, it was a good month for ripening and fruits that came in normally during this month were, perhaps, rather earlier than usual. The weather affected to a certain extent the earlier apples and rendered early shipments without ice extremely hazardous. There were not the usual September winds and there was less than the usual precipitation.

October proved an excellent month for apples, except that the later apples did not colour as rapidly as was anticipated. Indeed, in the more important apple districts the colouring of the fruit became a serious problem, and many orchardists passed anxious days awaiting for their Spies and Baldwins to get the proper colour on the trees before venturing to pick them. As it was, many were picked somewhat poorly coloured; many others were left too long and were caught with a rather heavy frost in the third week of October.

Upon the whole the season may be said to have been a good one for fruit, particularly for apples, but for various reasons many varieties did not keep well. Spies in particular went down very rapidly early in the winter. This has been attributed to the warm September; others attribute it to lack of colour which the apples should have received in October; but it is difficult to assign any specific cause.

The final harvesting of the apple crop showed that the conditions as to the quantity of the fruit were fairly uniform throughout the season. A rather light crop of early apples set; this light crop held through the season and was harvested early in good condition. The winter apples were somewhat heavier,—a medium crop or rather above. Spies and Baldwins in Ontario proved to be more than usually abundant.

The Nova Scotia crop was fairly evenly distributed among the standard varieties, and proved to be the largest in the history of the province. The increase, however, was due for the most part to the new orchards that are constantly coming into bearing, the older orchards having only a normal medium crop.

## PRICES.

The market conditions are determined only in part by the condition of the apple crop. The peculiar system of selling which is adopted in Canada, places a great in-



1 GEORGE V., A. 1911

fluence in the hands of the local buyers; and while there are combinations, cliques and associations among these buyers, there is no controlling organization for the whole body. As a result, market conditions are too often determined very largely by circumstances quite apart from the quality and quantity of the fruit. In 1909, the crop of winter apples in District No. 3, embracing the territory north of Lake Ontario, did not show prospects for a large crop. Many of the more active apple buyers live in this section and, noting the high prices given for early apples and the small quantity of winter fruit in their neighbourhood, they appeared to conclude that the crop of 1909 was likely to be short. They proceeded, therefore, early in the season to buy almost indiscriminately and at comparatively high prices. The rise in price was probably accentuated by a large number of preliminary inquiries from the Northwest.

#### THE CROP IN THE LAKE HURON DISTRICT.

The crop in the Lake Huron counties was a fairly large one, not for the number of trees, but for the district. This section contains a large number of orchards, none of them of great size and all but a few on ordinary farms, where very little care is given to the orchards. Consequently the yield per tree is small and the crop very irregular from year to year; but when there comes a year like 1909, when there is a fair setting of fruit in all the orchards, the aggregate of fruit is very large, but the quality quite inferior. This fruit was bought freely in the early part of the season, usually by the lump. At harvest time the apple operators (the buyers) followed their usual practice of harvesting everything in the orchards. In the meantime, prices had declined. Many of the buyers found themselves loaded with an inferior lot of fruit, and to 'break even,' many of them branded this inferior fruit higher than it deserved. Of course, much of this fraudulently marked fruit was discovered by the fruit inspectors and numerous prosecutions were the result.

It is noticeable in an analysis of the origin of the cases that were prosecuted by the Fruit Division, that the greater number of them originated in the district where the poor sample of fruit is grown and where there is no organization among the growers.

#### QUANTITY OF FRUIT STORED.

It is not easy to secure exact figures with reference to the quantity of apples stored in Ontario and Nova Scotia for winter shipment. For several years the Fruit Division has gathered figures in an unofficial way. These figures have been verified by the actual shipments later on and, while there can be no exact correspondence, the result is near enough to show that the unofficial figures approach the actual quantity. The larger quantity of fruit is stored north of Lake Ontario, in the province of Ontario, and in the numerous warehouses in Nova Scotia from Bear River to Windsor. The following table gives the aggregate of fruit in store in Eastern Canada the 1st of January, 1910:—

	Barrels.
Ontario, west of Toronto.. . . . .	22,000
“ Georgian Bay district.. . . . .	30,100
“ north of Lake Ontario.. . . . .	184,100
Nova Scotia.. . . . .	386,000
Montreal, P.Q... . . . . .	75,660
St. John, N.B... . . . . .	21,300
Total.. . . . .	719,160

It would greatly steady the market if authentic figures of this sort could be published early in the season. It would be fairly easy then for merchants to make calculations with reference to the quantity of stock on hand, and it would enable those holding apples to make calculations with reference to the marketing.



## SESSIONAL PAPER No. 15a

## EVAPORATED APPLES.

The condition of the Canadian evaporated apple trade is not altogether satisfactory. So long as our present system of selling the apple crop is in vogue, improvement in the evaporated apple trade will be slow. The difficulty arises in part in the evaporators not having the proper grade of green fruit for their purpose, and in part from carelessness in the process of manufacture. Even if the greatest care were taken with the present stock, it would be extremely difficult to produce a high grade of apples, and though there is no excuse for careless and slovenly work in the evaporators, nevertheless, with the best work only a second quality of goods can be produced. This arises from the fact that nothing but cull fruit, and usually cull fruit of a very low grade, is available for evaporation. Four-fifths of the apples are sold to apple evaporators who buy largely by the lump. That is, they contract for the orchard and all the fruit that is in the orchard, even where the apples are paid for by the barrel. There are few farmers who have a sufficient quantity of culls to pay them for hauling them to the evaporator, considering the low price which is offered by the evaporator and the scarcity of labour at this time of the year. As a consequence, large quantities of apples go to waste, that under a proper system of selling the fruit, would be utilized for evaporated stock even though the product was not of No. 1 quality. An estimate of the quantity of this material going to waste leads me to believe that, properly handled, the low grade apples that now go to waste or are sent to market with little or no profit to anybody, would more than pay the expenses of harvesting the crop, would leave the market in a better condition for green fruit and would infinitely improve the quality of evaporated stock. This can be brought about only when the apple growers will unite in co-operative associations. Having the evaporator always at hand and convenient to the fruit, the evaporated stock could be manufactured with less cost. When the value of a fancy brand of evaporated stock accrued to the growers of the apples, there would be a much greater inducement to evaporate all green apples lower in grade than No. 1, or at least all that were not strictly good No. 2.

## FRUIT MEETINGS.

At the close of the active inspection work in March and April, the inspectors were for the most part detailed to attend fruit meetings in the different provinces. The number of meetings attended is as follows:—

P. J. Carey.. . . . .	28
G. H. Vroom.. . . . .	31
W. W. Brown.. . . . .	22
M. R. Baker.. . . . .	10

I attended fifteen meetings in southwestern Ontario, Nova Scotia and Prince Edward Island.

## DECLINE OF WINTER APPLE ORCHARDS IN ESSEX AND KENT COUNTIES, ONTARIO.

In southwestern Ontario I found a rather unfortunate state of affairs. The counties of Essex and Kent are specially adapted for the growing of fruit. The soil is peculiarly fertile and the climate the earliest in Canada. Latitude 42 passes through the southern part of the county of Essex, and the proximity of Lake Erie and Lake St. Clair tends to secure equability of climate.

Notwithstanding these advantages in climate and soil, the fruit industry has been declining from year to year. The causes of this are not far to seek. Unlike many portions of Canada, these sections of the country can grow a great variety of products



1 GEORGE V., A. 1911

and succeed in all. They have not, therefore, the incentives to the production of fruit that they would have if confined to this single product.

Early in the history of the district, the growers turned their attention largely to the winter varieties of apples and they succeeded admirably. Large orchards were planted, products of which constituted chief sources of revenue on many farms. The success of these orchards induced the planting of large orchards farther north as the northern country opened up, and then it was discovered that the winter apples of these northern counties were better keepers, using only ordinary storage and the rather imperfect transportation facilities of a few years ago. The orchards in these southern districts, though they produced as well as ever, were relatively not as desirable as they were formerly and the owners of the orchards allowed them to fall into neglect. Indeed quite frequently orchards in their prime have been cut down because their owners did not consider them sufficiently remunerative. They had not yet learned the lesson which the orchardists of New York State similarly situated had learned, that their winter apples could be kept in perfect condition so as to compete in quality and even excel the very best northern product, by the proper using of cold storage. Neither have they learned that there exists a good market which will absorb all the early fruit which they can produce. They are quite sceptical, too, of the possibility of transporting tender early fruit to these long distance markets. Early apples with them had been grown so well and so easily and had been so worthless as a market product, that it was a strange doctrine to tell them that with proper cold storage facilities in their own orchard, and with the cold storage facilities which were supplied them now by transportation companies, they could put their early apples into Covent Garden, England, or into Calgary in the Northwest, in as good condition as they could formerly put them into the markets of the nearby city of Toronto. There are, however, some signs of improvement.

#### CHATHAM CO-OPERATIVE ASSOCIATION.

In the neighbourhood of Chatham, the formation of a co-operative association has helped to inform the public with reference to the advantages of these counties, and to impress the fact that the transportation facilities have been so materially improved that the more tender early fruits can now be shipped with perfect safety to the large and distant markets.

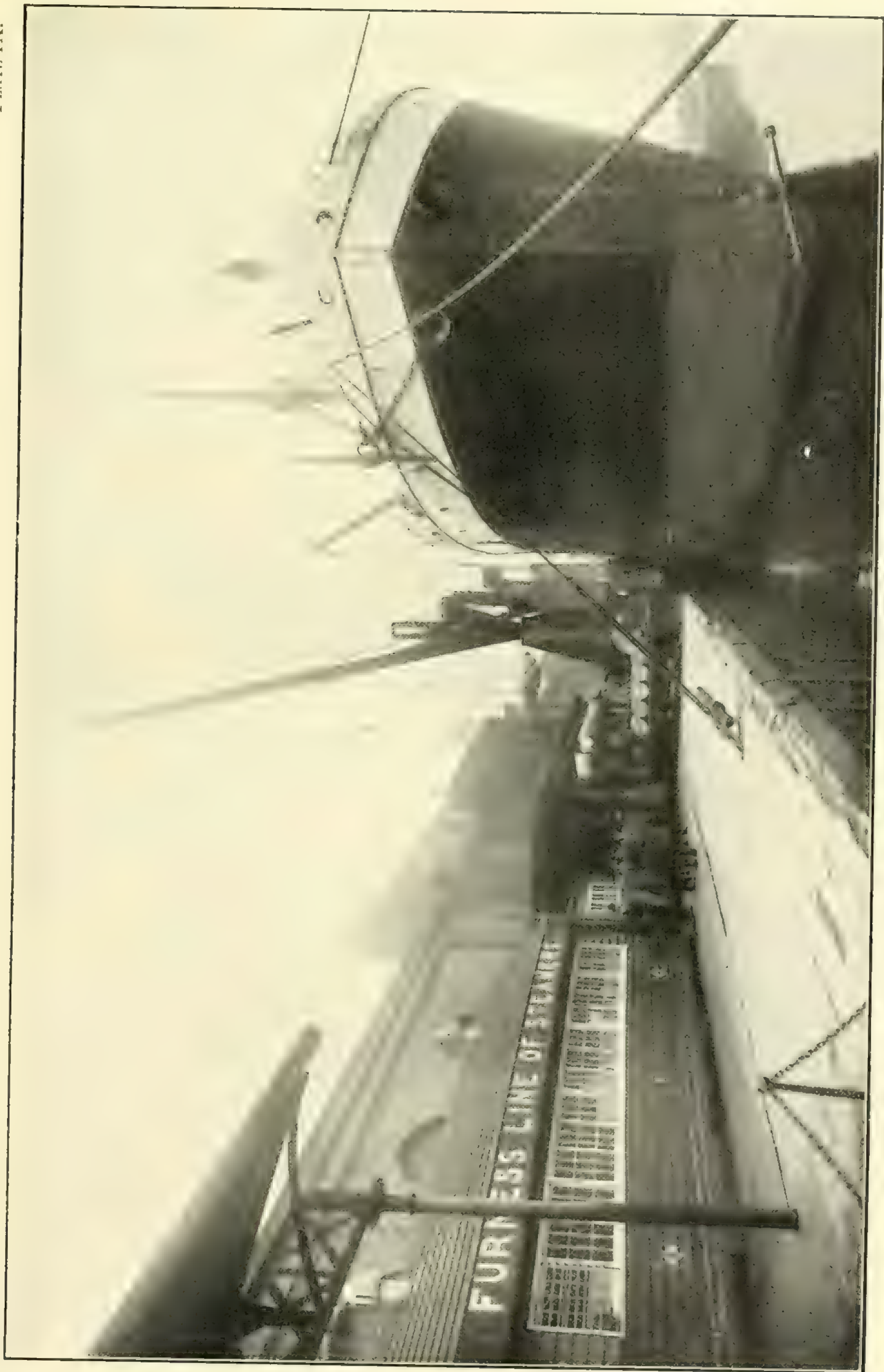
#### ESSEX TRUCK AND EARLY FRUIT FARMS.

I found, also, that several enterprising growers in the neighbourhood of Leamington, in Essex County, had specialized in early products and were succeeding splendidly. These vegetable and fruit growers were shipping large quantities of early tomatoes, cucumbers, musk melons, early strawberries and raspberries, and a small quantity of early apples. There is no reason to doubt that these counties might very profitably be devoted to the early varieties of all kinds of fruits. They would be the first in the market and their products would go into consumption before the rest of the province had anything to offer. The difficulty, of course, will be in the starting, inasmuch as the transportation rates and cold storage facilities, which are essential to the success of this trade, could not be applied so profitably to small quantities as to large quantities. In the development of the co-operative associations we must look for the means of increasing the early fruit and early vegetable trade, for which the counties are particularly favourably situated.

#### APPLE GROWING IN NOVA SCOTIA.

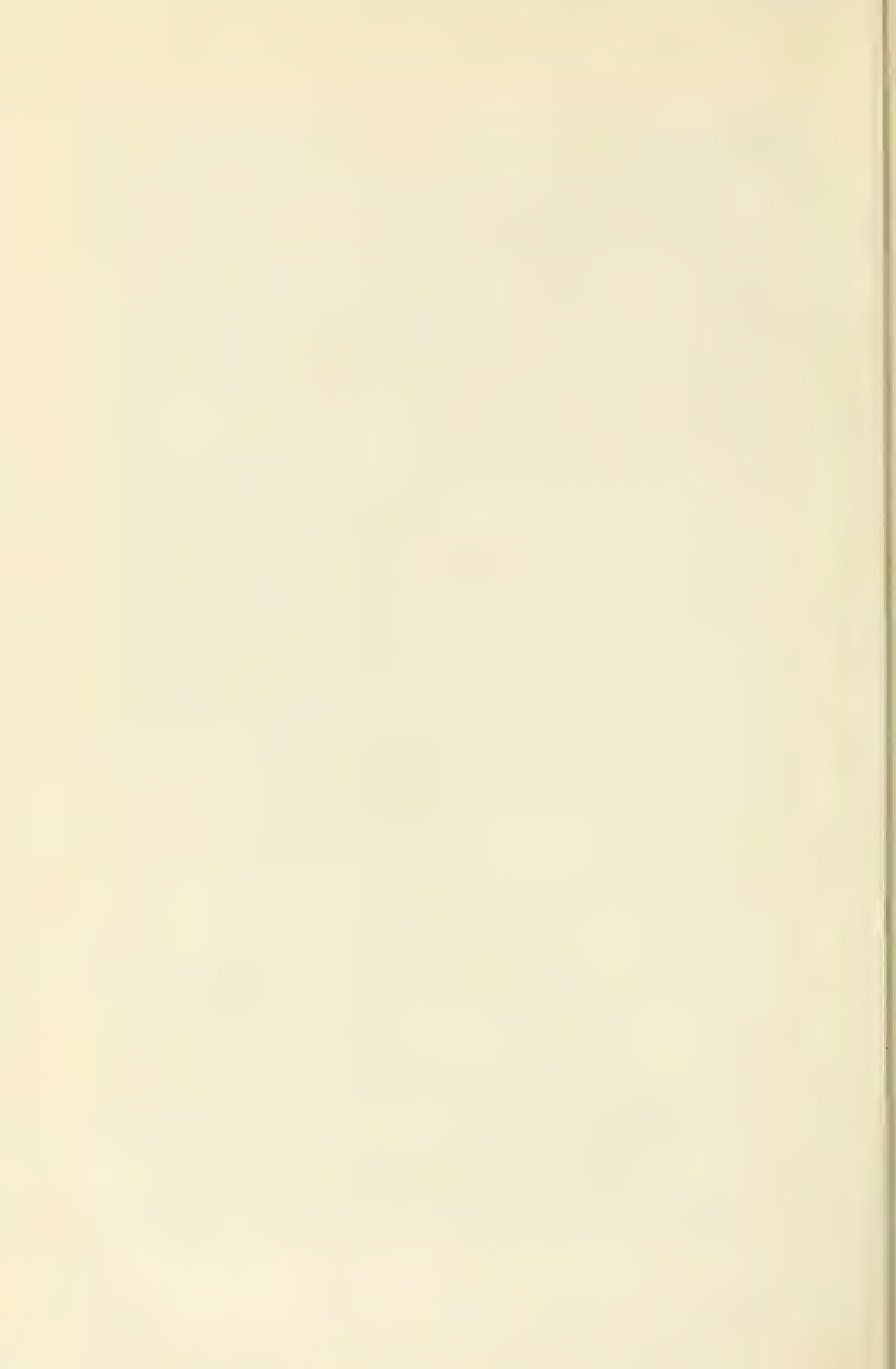
In Nova Scotia, the fruit interests are confined almost exclusively to the apple, and it is a pleasure to record that there has been in late years a very marked improvement in connection with this industry. The apple industry is almost wholly confined to the three counties, Annapolis, Kings and Hants; and nowhere in Canada, within



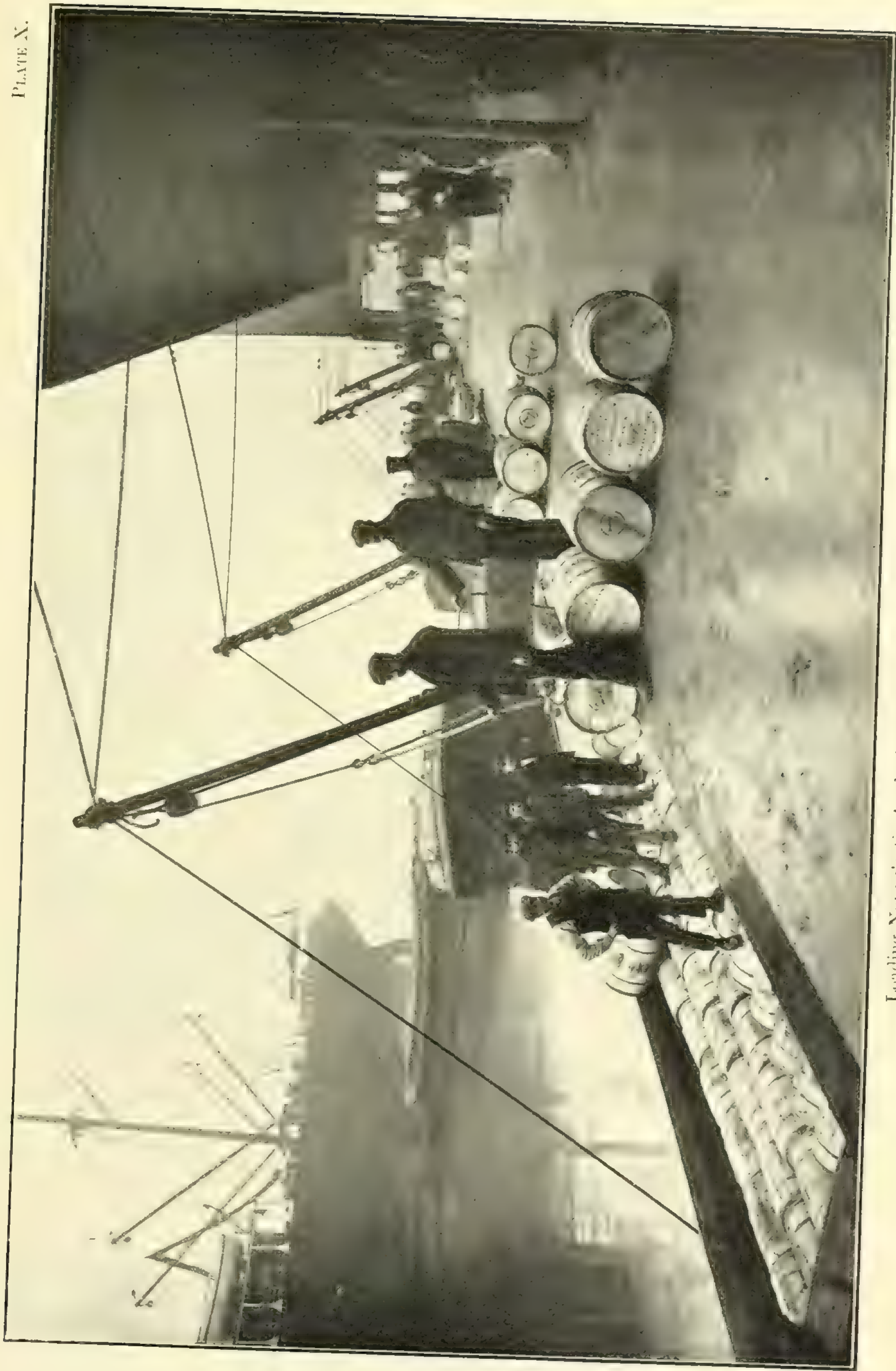


Landing Nova Scotia Apples at Victoria Docks, London.



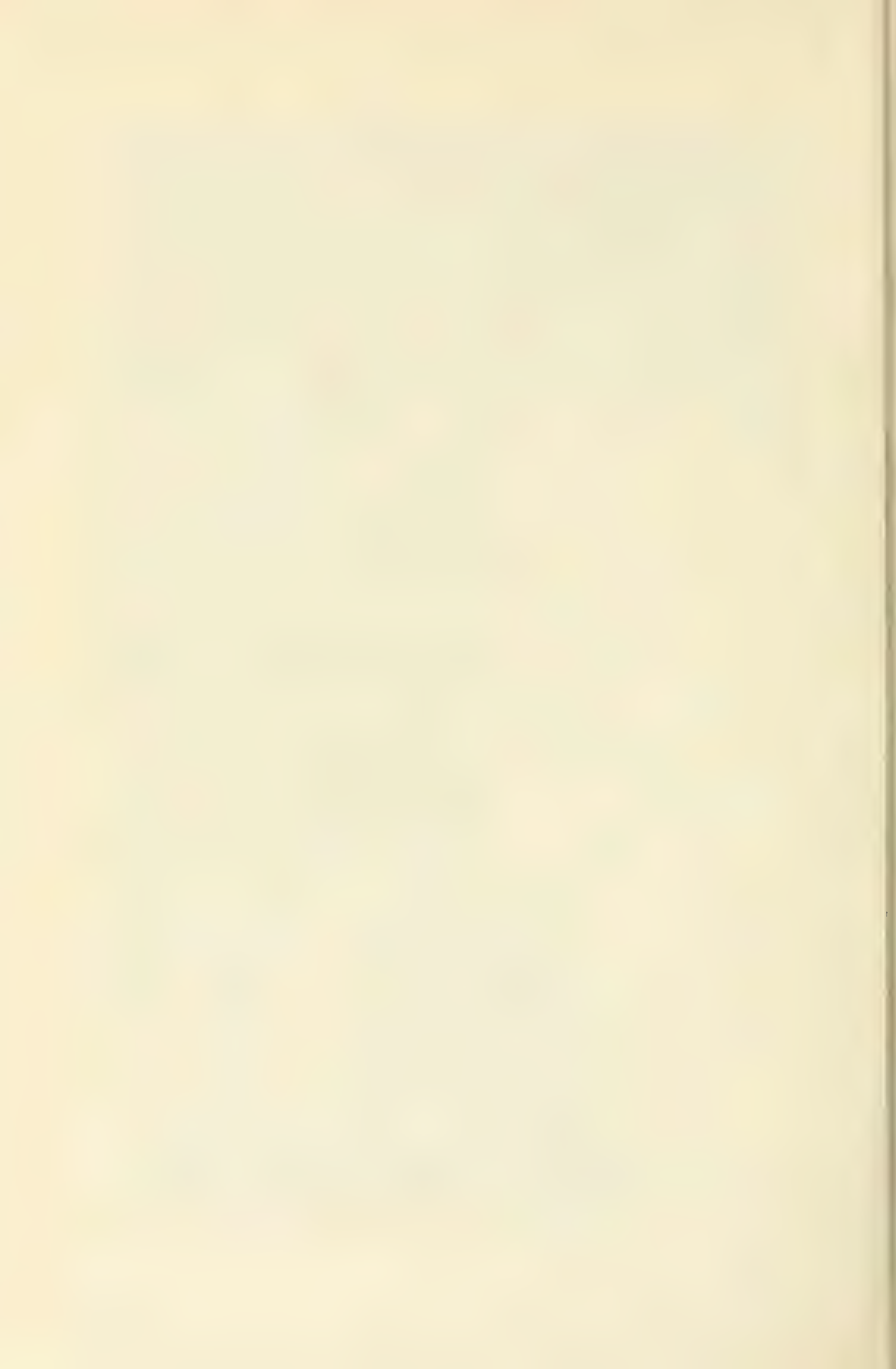






Loading Nova Scotia Apples into River craft, Victoria Docks, London.







## SESSIONAL PAPER No. 15a

the same area, can be found so large an acreage of well tilled and well pruned orchards. From Digby to Falmouth, in the valley of the Annapolis and Cornwallis rivers, as well as in the valley of the Gaspereaux and Avon, many farmers rely almost entirely upon apples as their moneyed crop. Indeed, it seems as if the danger point had almost been reached in specializing along this line. Many of the larger growers keep no live stock, or very little, and consequently the supply of barnyard manure is quite inadequate for the needs of their orchards, and large quantities of commercial fertilizers are used as substitutes. This undoubtedly pays; but it is a question whether it would not be in the interests of the country as a whole if more stock were kept. Even if part of the feed had to be purchased, I venture the opinion that it would be true economy to spend more money for cattle feed and less for fertilizers. Indeed, the problem has worked out in this way in some cases, and I strongly recommend that more attention be directed to this question of keeping more stock in the fruit districts.

## IMPROVEMENT IN ORCHARD PRACTICE.

It is a pleasure to note the improvement in the orchard practices compared with seven years ago, when I first attended orchard meetings in Nova Scotia. Many of the recommendations that were made then and which appeared to the growers as innovations have been adopted here and there, and the success of the more modern methods is now becoming apparent. At my first meeting I strongly recommended the low headed tree. Many objections were raised and very few of the orchardists have yet adopted this method. Nevertheless, some of the largest planters of new orchards have adopted this, and the many advantages are becoming apparent. It is not too much to expect that in the near future all the young orchards will be trained with low heads.

## CLEAN CULTURE.

Clean culture was in use by a few many years ago; but it is only within recent years that it has become common. It is now almost universal in the orchards of those who are depending upon apples as their moneyed crop. Unfortunately, many of the farmers who make apple growing simply a side line do not cultivate their orchards and, as a consequence, they place upon the market a very inferior quality of fruit.

## IMPROVEMENT IN SPRAYING.

For a number of years the Fruit Division conducted experiments in power spraying in Nova Scotia. One of the effects of these demonstrations was to impress the value of spraying, and now it is seldom that any one questions its economy. It is quite true that a great many apple growers do not spray yet; but it is very seldom that you meet with one who does not apologize for not doing so, and still rarer that you find an apple grower who will assert that spraying is of no use. The fact that spraying is universally regarded as essential to success in apple growing is a great step in advance.

## VARIETIES FOR NOVA SCOTIA.

Nova Scotians have something to learn yet with reference to varieties. The peculiarities of the climate and soil here, as everywhere, must dictate what is more profitable to grow. The Baldwin is successful over so large an area of North America that many growers seem to regard it as a variety that may be planted anywhere. It can be grown in Nova Scotia, it is true, but other varieties, and perhaps better varieties, succeed so well that it seems hardly worth while to plant it when these are available. To a less extent this is also true of the Northern Spy. The Gravenstein is becoming less popular as a commercial apple and is scarcely planted at all in the younger orchards, for quite different reasons. This apple can be grown to perfection, but the tree appears to have developed a weakness in the matter of collar rot. The facilities for getting the fruit to market safely have not yet been provided. It seems



1 GEORGE V., A. 1911

somewhat unfortunate that where an apple can be grown to such perfection as the Gravenstein in Nova Scotia, it should pass out of cultivation from purely preventable causes. There seems to be no doubt that collar rot can be successfully combatted if the work is intelligently approached. To get the fruit to market requires only an improvement in the matter of cold storage in connection with the present system of transportation.

#### STOREHOUSES.

Nothing is more noticeable in connection with this industry than the large increase in the number of storehouses that have been erected at various shipping points in the Annapolis and Cornwallis Valleys. For the season 1909-10 there were at least seventy storehouses owned either by private shippers, by co-operative associations or by large receiving firms in Great Britain. Perhaps it is not altogether a matter of congratulation that so many of these storehouses are owned by others than the fruit growers themselves. Supplying storage capacity is a small matter compared with the value of the product stored. If, however, the storage capacity is controlled by outside parties, it curtails sometimes to a very large extent the liberty of the growers to secure proper market advantages for their product. It confines them to a single firm who may or may not have the proper connections to secure the best market prices. It is to be hoped that the co-operative sentiment will extend so rapidly in the future that the storehouses at least will all be in the hands of the fruit growers.

#### CO-OPERATIVE ASSOCIATIONS.

The co-operative idea has been slow in taking root in Nova Scotia; but the development in 1909-10 would seem to indicate that, once having started, it will make rapid progress. I visited several of the associations and found them all thoroughly alive to the advantages of co-operation, and the indications were good that in the near future the greater part of the fruit will be handled co-operatively.

#### MEETINGS IN PRINCE EDWARD ISLAND.

I also found great advances in Prince Edward Island. The meetings were all well attended and in every case by men who were likely to plant orchards. The success of the apple industry in Prince Edward Island is assured if a sufficient number of growers can be induced to make the output large enough to engage the attention of transportation companies and buyers. The two difficulties in the way at the present time are the want of familiarity with methods of packing and the difficulty of reaching a suitable market. Both these difficulties will rapidly disappear with an increase in the crop. At the present time there is not sufficient fruit grown upon the island to supply the local needs, except, perhaps, it may be in the case of early apples; but even in early apples it is doubtful whether more are grown than could be used upon the island if they were properly distributed.

#### BOX PACKING DEMONSTRATIONS.

For many years the Fruit Division has been engaged in some form of work for the encouragement of box packing in Eastern Canada. The results on the whole are satisfactory. At first the work had to take the purely educational form of demonstrating the value of box packing. At fall fairs, fruit growers' meetings and other places, demonstrations were given, drawing attention to box packing and giving occasion for pointing out the many advantages of this mode of packing high class fruit.

Public interest having been aroused and the trade buying acquired some magnitude, it became necessary to secure experts in box packing to give instructions in



## SESSIONAL PAPER No. 15a

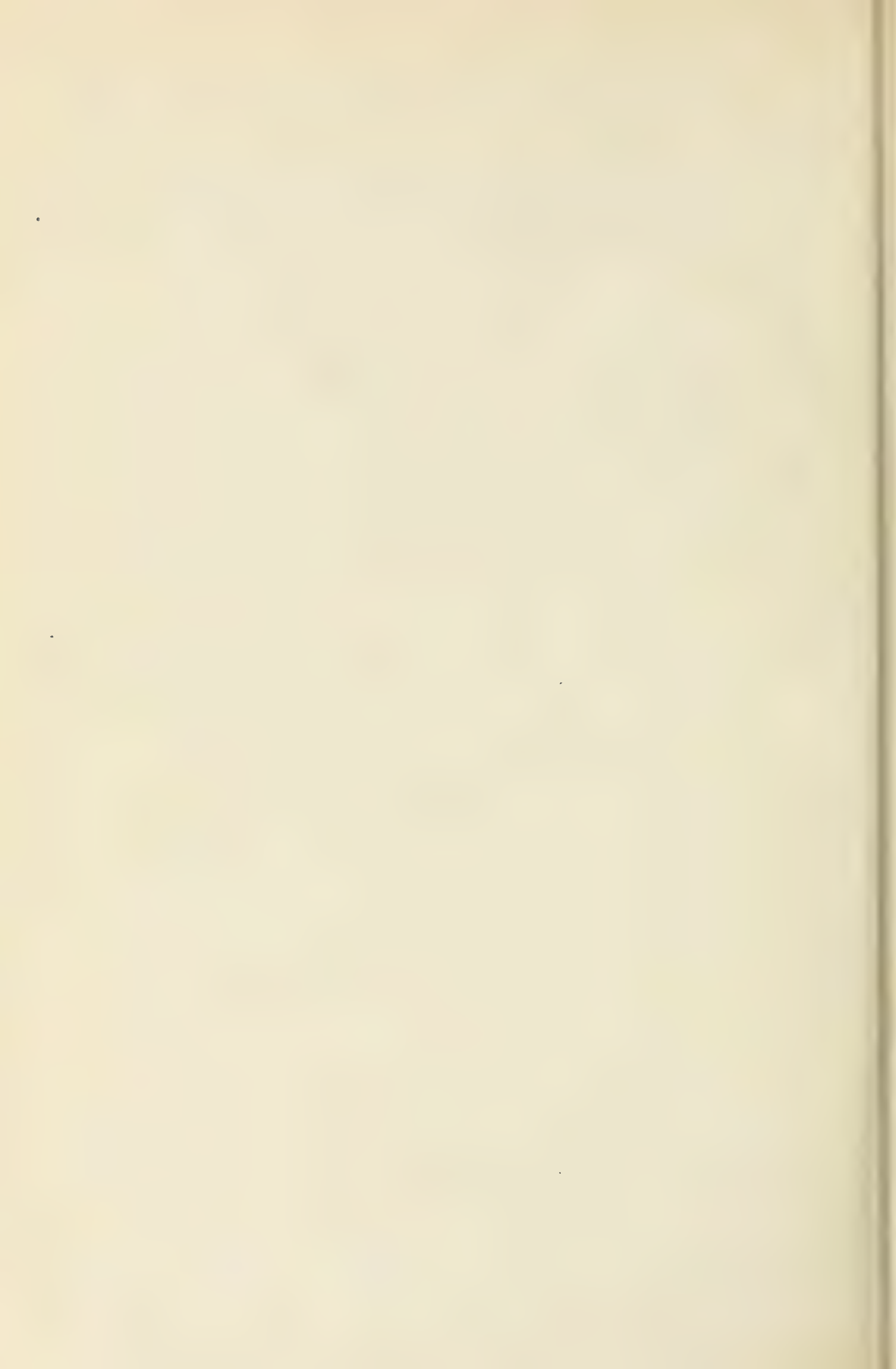
the details of the work. This work was continued during the season of 1909-10. Mr. F. G. Earl, of Lytton, B.C., was engaged and commenced work the 17th August in southern Ontario. Later he went to New Brunswick, Prince Edward Island and Nova Scotia in succession. He gave demonstrations during this time at exhibitions in London, Ont., Fredericton, N.B., Charlottetown and Georgetown, P.E.I., and Middleton, N.S. He was able, also, to visit Truro College, N.S., for classes with the students.

Mr. Earl was well received everywhere, and furnished a most valuable report of his tour. He gives it as his opinion that if the same care with reference to grading and packing were observed in Eastern Canada as on the Pacific slope, a very large trade could be developed in boxed fruit. One of the chief criticisms made by Mr. Earl was that the orchard methods were such as to permit a large quantity of third grade fruit to reach maturity. Consequently, the task of securing a grade sufficiently good for boxing was materially increased. He strongly recommended the farmers to thin the fruit, prune and spray carefully and cultivate their orchards, so that at harvest time there would be little to pick except No. 1 fruit. If this were followed, Mr. Earl expressed the opinion that boxed fruit from Eastern Canada would very soon become a marked feature of the apple trade.

Respectfully submitted,

A. McNEILL,  
*Chief, Fruit Division.*

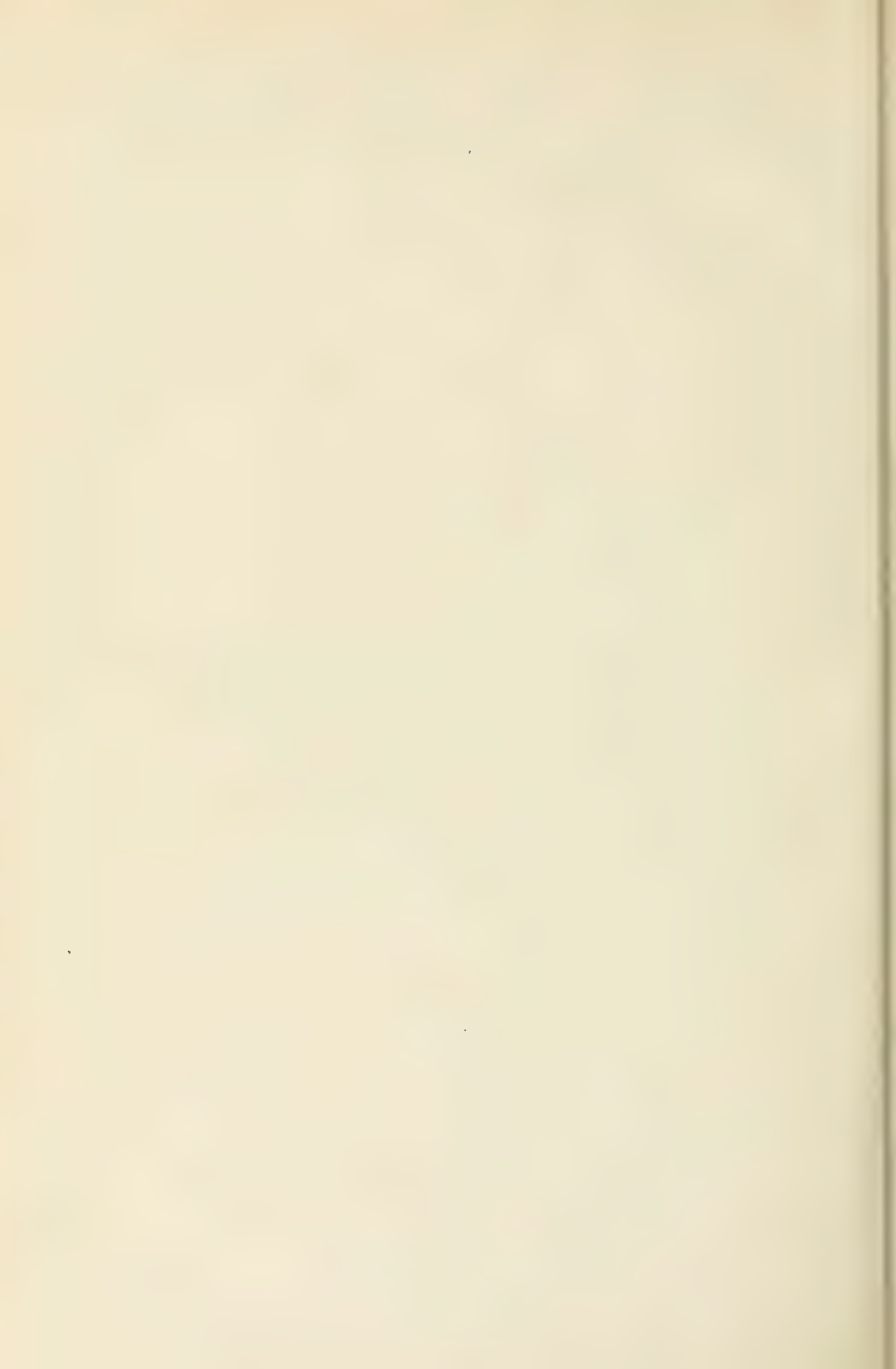






## PART IV.—COLD STORAGE







## PART IV.—COLD STORAGE.

### *BY THE DAIRY AND COLD STORAGE COMMISSIONER.*

The cold storage business has been much discussed during the year and some very severe and rather senseless things have been said about it in connection with the increased cost of living. There may be abuses, as there are in most lines of business, but the broad fact remains that the cold storage warehouse enlarges the market for perishable products during the periods when surplus stocks are available, and thus encourages production; and it is, after all, the law of supply and demand which is the most important factor in regulating prices. Without the cold storage warehouse there would be enormous waste of perishable products, still further reducing the supply, which could have only one effect on the cost of these articles to the consumer. The cold storage warehouse serves the same purpose as the grain elevator or as a warehouse intended for any other product, and with the growing centres of population and demand for luxuries at all seasons of the year, the cold storage warehouse has become a necessity of modern civilization.

The following paragraphs are quoted from bulletin No. 23 of the Dairy and Cold Storage Commissioner's series, recently issued:

The cold storage industry has grown out of the practical experience of people living in northern climates who have observed the preservative effect of 'cold' when perishable food products are exposed to it. Every family that makes use of a kitchen refrigerator, or that places milk, butter, meats, fruit or other vegetables in a cold cellar, puts into practice the principles which underlie the operation of the most up-to-date cold storage warehouse in the country. The difference is one of degree as measured by the temperature employed in each case.

The thrifty householder who lays in a supply of butter, poultry, meats, &c., during the early part of the winter, when such things are in supply, and then keeps them in some unheated storeroom in a frozen condition for several months, is employing exactly the same means to preserve them as if they were taken to a cold storage warehouse, with this qualification, that in the warehouse there is practically no change of temperature—no danger from thaws—and therefore, greater certainty of preservation.

The farmer who keeps apples, potatoes or any other vegetable in a 'pit' during the winter, is taking advantage of the preservative effect of a low temperature when he covers them only sufficiently to prevent the frost from penetrating.

The fruit grower who stores his apples in a frost-proof warehouse depends on the same means of preservation as the cold storage man does, namely a low temperature without frost. There is no difference in the effect, whether the temperature is reduced naturally or whether the same result is brought about by artificial means. The advantage, however, is with the cold storage warehouse, because the temperature can be absolutely controlled and the preservative effect of 'cold' can be applied when it is most needed, namely during the warm weather of autumn, or immediately after the fruit is harvested and before cold weather arrives.

Perishable food products are so-called because of the tendency to undergo change and decay. These changes are controlled to some extent by the degree of heat to which the articles are exposed. Thus milk will keep sweet longer in a cool cellar than it will in a warm pantry, and a well iced refrigerator will keep it longer than the cellar, because of the lower temperature. These somewhat obvious facts are mentioned to show that the cold storage industry is merely the organized and systematic application of well known and long practised principles.



1 GEORGE V., A. 1911

The cold storage industry benefits both the producer and the consumer by working to prevent alternate periods of glut and scarcity, accompanied by unprofitable prices at one time and exorbitant or prohibitive prices at the other extreme. The benefits derived from cold storage are well illustrated in its influence on the egg trade. There are other methods of preserving eggs, but of late years cold storage has been recognized as the most efficient. If it were not for the cold storage facilities which are now available, the price of eggs would, for lack of a market, go so low during the laying period of spring and early summer that production would be seriously discouraged and the scarcity which would result during the off season would boost prices for all kinds of eggs to such an extent as to make them prohibitive for the majority of the people.

The use of cold storage gives the producer a fair price for his eggs at all seasons, and the consumer can secure a storage egg in fair condition during the fall and winter months at reasonable prices. No one would claim that a cold storage egg is equal to a fresh laid egg, but fresh laid eggs are not available in any quantity, and without the storage eggs, a large proportion of the people would be unable to secure eggs of any kind during the winter months, no matter what price might be paid for them. The same thing applies to butter, poultry, meat and fruit in a lesser degree.

#### PREJUDICE AGAINST COLD STORAGE AND COLD STORED FOODS.

That many people are prejudiced against any article which is said to have been in cold storage, can hardly be denied, and it must be admitted that they sometimes have reason to be suspicious of cold storage goods. The average consumer is not in a position to discriminate between effects which are actually due to cold storage and those which are the result of improper handling, or lack of ordinary precautions in the storing of goods already out of condition. It is true that food products do not always come out of cold storage in good condition, but it is also true that they do not always go into cold storage in good condition. It is not often that goods are kept long enough in cold storage to show serious deterioration if the storage conditions have been right and they have been placed therein in proper condition.

The cold storage business has suffered indirectly from the actions of dishonest dealers who misrepresent cold storage goods, as in the case when storage eggs are sold for strictly 'new laid' or even for 'fresh' eggs. This is probably not the proper occasion on which to discuss the ethics of the cold storage business, but one thing is certain, such practices will not assist in securing for it its proper place in the estimation of the people.

The cold storage industry is founded on sound economic principles and, properly conducted, is of benefit to both producer and consumer. There are faults of management in the operation of the cold storage business, as in other kinds of business. The cold storage business is a new one and it has been undertaken, in many cases, by men with no previous experience and with no accurate knowledge of either the principles or the practice of refrigeration. Lack of experience and knowledge has also resulted in badly constructed, poorly insulated and insufficiently refrigerated warehouses. These defects are gradually being remedied through the lessons taught by experience. The housekeeper who may be inclined to sneer at cold storage provisions, as such, should discard the ice box and all other attempts to keep things 'cool.' The fruit grower or dealer who does not believe in cold storage should be consistent and keep his apples or other perishable products at ordinary room temperature during the winter months.

#### THE FIELD FOR EXTENSION OF THE COLD STORAGE INDUSTRY IN CANADA.

The field for the expansion of the cold storage business, through the public cold storage warehouse, is not very extensive in Canada at the present moment. The larger centres have already been supplied and the openings where a purely cold storage business may be conducted successfully in distributing centres are not numerous. On the



## SESSIONAL PAPER No. 15a

other hand, the opportunities for the successful operation of small warehouses in producing districts, seem to afford the best opening for the extension of the industry at the present.

There are many localities where small cold storage warehouses operated in connection with the produce business should prove of advantage not only to the owners, but to the producers in the locality. The apple trade is susceptible of much improvement by the judicious adoption of cold storage facilities. It would be a comparatively simple matter to convert many of the present apple warehouses, of which there are so many at points on Lake Ontario and along the Dominion Atlantic Railway in Nova Scotia, into cold storage warehouses. It would be quite practicable in many places to establish a central refrigerating plant with pipe lines running to each warehouse. Only slight alterations in the insulation would be necessary. Such warehouses could be equipped with cold storage at comparatively little cost.

The fishing industry and the trade in fish products probably offer as good a field for the extension of cold storage as any other line in Canada at present. The great distance from the sea at which a large number of the people of Canada must always reside, makes it impossible for them to procure sea fish in fresh condition without the use of cold storage and cooling facilities. The application of cold storage to the fishing industry of Nova Scotia within the last two or three years has resulted in the rapid development of the inland trade and it is undoubtedly capable of great extension with the aid that may be rendered in this manner.

## SUBSIDIES FOR COLD STORAGE WAREHOUSES.

There has been considerable activity in the construction of cold storage warehouses during the year. Contracts have been entered into for the erection of cold storages warehouses, under the terms of the Cold Storage Act, with the following firms:—

The J. D. Moore Co., St. Mary's, Ont.

The B. Wilson Co., Victoria, B.C.

The Maritime Cold Storage Co., Lockeport, N.S.

The Canadian Fish & Cold Storage Co., Prince Rupert, B.C.

The Hamilton Cold Storage Co., Hamilton, Ont.

The Dominion Fish and Fruit Co., Quebec, P.Q.

## CREAMERY COLD STORAGE BONUSES.

During the past season forty-seven owners of creameries made application for information regarding the bonus paid for the erection of creamery cold storages. Of this number eighteen complied with all the conditions and received the full bonus of \$100. The other twenty-nine applications were disallowed, either because of poor construction or failure to maintain proper temperature in the cold storage, or because the applications were sent in too late. In some cases the erection of the cold storage was postponed until 1910. Two creameries which had received the first instalment of the bonus some years ago, under the old arrangement, were paid the final instalment of \$50 each.

Following is a list of the bonuses paid during the year:—



Location of Creamery.	To whom Paid.
<i>Paid \$100.00.</i>	
1 St. Anaclet (Rimouski), Que.....	Ovide Couture, Sec.
2 Baden, Ont.....	Silver Spring Creamery.
3 Birch Hills, Saskatchewan.....	H. A. Wilson, Sec.
4 Cedar Hall (Rimouski), Que.....	J. Bte. Anstil.
5 Fairfax (Stanstead), Que.....	L. Marion, Sec.
6 Griffin (Stanstead), Que..	W. H. Brevoort, Sec.
7 Honoréville (Iberville), Que. .	Edgar Tessier.
8 St. Joseph du Lac (Two Mountains), Que..	H. J. Lafrance.
9 St. Leon (Maskinongé), Que.....	Jos. Fleury, Sec.
10 St. Luc (Matane), Que .	Gendreau & Imbealt.
11 North Stukely (Shefford), Que.....	Louis Fleurant.
12 Orono, Ont.....	McPeeters & Ball.
13 Rimby, Alberta.....	John L. Beeley, Sec.
14 Sutton (Brome), Que.....	Nap. Menard.
15 Trois Pistoles (Rimouski), Que.....	Alexis Côté, Sec.
16 Warwick (Drummond), Que.....	Jos. Binette.
17 Wickham (Drummond), Que.....	J. J. Vanasse.
18 St. Zotique (Soulanges), Que.....	Alph. E. Verrouneau.
<i>Paid \$50.00.</i>	
1 L'Assomption (L'Assomption), Que .....	Charles Gravel.
2 St. Grégoire (Nicolet), Que.....	J. A. Toutant.

SUMMARY OF BONUSES PAID SINCE 1897.

398 creameries have received the full bonus, \$100.. . . .	\$39,800
145 creameries have received \$75.. . . .	10,875
140 creameries have received \$50.. . . .	7,000
	<hr/>
	\$57,675

ICED CAR SERVICES.

The various iced car services were again operated by the railways under arrangements made on behalf of the department, by the Dairy and Cold Storage Commissioner, as follows:—

1. Iced butter cars were run weekly over specified routes to Montreal and Quebec from May 17 to October 16, to pick up small lots of butter at way stations. This service permits shippers of small lots to receive the full advantages of shipment in iced cars at regular tariff rates. Without such an arrangement the shipper would have either to pay the full carload rate on a small quantity, or hold his butter until a carload had been accumulated. The department guarantees two-thirds of the earning of a car from starting point to destination, plus \$4 per car for icing. In a great many instances the cars are well loaded, so that there is no claim on the department under the guarantee. The total cost in 1909 for the iced butter car service on fifty-eight routes, covering all the railways, was \$8,887.42.

2. Iced cars for the carriage of cheese in carloads are supplied by the railways on demand of shippers. The department agreed to pay icing charges on a limited number of these cars, to the extent of \$5 per car, during a period of ten weeks beginning July 5, and ending September 11. The cost of the iced cheese car services on all railways was \$3,599.

3. A service of iced cars for the carriage of fruit intended for export in cold storage was also provided on the same terms as for the cheese cars, at a cost of \$659.

The reports of the refrigerator car inspectors, giving temperature of products, &c., will be found in Part II., pages 113 to 121.



## SESSIONAL PAPER No. 15a

## COLD STORAGE CHAMBERS RESERVED FOR FRUIT.

Shippers desiring to export fruit in cold storage to Great Britain have found a difficulty in securing refrigerated space for small quantities. The smallest chambers on the ships run from 2,000 to 4,000 cubic feet capacity, and the steamship agents not unreasonably decline to open a chamber unless there is sufficient freight offered, of the right class, to occupy a fair proportion of the space.

In 1908 the Minister authorized the Dairy and Cold Storage Commissioner to have a small chamber reserved for fruit on four different sailings, the Department to guarantee the earnings on the full space of the chamber. The experiment was repeated in 1909, but owing to the small crop of early apples and pears, the shipments were comparatively small. Chambers were reserved on the steamers sailing from Montreal to London and Glasgow, as follows:—

Steamer.	Line.	Sailing Date.	Destination.
Hesperian...	Allan. ....	21st August. ....	Glasgow.
Cairnrona.....	Thomson.....	28th " .....	London.
Grampian .....	Allan.....	4th September.....	Glasgow.
Hurona .....	Thomson.....	11th " .....	London.
Hesperian.....	Allan.....	18th " .....	Glasgow.

The quantity of fruit shipped in these chambers was as follows:

\*Hesperian.....Nil fruit  
 Cairnrona.....225 boxes pears  
 Grampian.....199 boxes pears, 247 barrels apples  
 Hurona.....25 boxes pears  
 Hesperian.....100 boxes pears, 81 barrels apples.

## COLD STORAGE ON STEAMSHIPS.

It has been our custom for several years to publish in the annual report of the Branch the details of the cold storage space on the different steamships sailing from Montreal and Quebec, as a sort of directory for the benefit of shippers. There have been a number of changes since our last report was published, and for that reason the information is repeated with the necessary revision. It is needless to say that the cold storage space is ample for all the traffic offered. As a matter of fact, since the decline in the butter shipments a large part of the space is not used.

\* As the chamber on this boat was not used, the Department was not asked to pay the amount of the guarantee.



NUMBER of Sailings of Steamers from Montreal and Quebec, with details of Cold Storage Accommodation, Season 1909.

ALLAN LINE.

Name of Steamer.	Number of Sailings.	Number of Chambers.	Capacity in Cubic Feet.
To Liverpool—			
Tunisian. . . . .	7	4	21,650
Victorian . . . . .	7	5	17,260
Virginian. . . . .	7	4	12,440
Corsican. . . . .	8	5	24,270
To London—			
Sicilian . . . . .	5	4	17,980
Hibernian. . . . .	2	3	7,956
Ontarian. . . . .	3	4	16,843
Pomeranian . . . . .	5	2	8,056
Sardinian . . . . .	5	2	9,628
Corinthian. . . . .	4	4	16,722
To Glasgow—			
Pretorian . . . . .	7	6	25,270
Ionian. . . . .	8	6	13,553
Grampian. . . . .	7	5	23,400
Hesperian . . . . .	7	5	23,400

CANADIAN PACIFIC LINE.

To Liverpool—			
Lake Erie. . . . .	5	4	21,700
Empress of Britain, from Quebec. . . . .	7	3	29,700
Empress of Ireland, from Quebec . . . . .	7	3	29,700
To London—			
Montrose. . . . .	2	4	23,000
Montfort . . . . .	5	3	24,700
To Bristol—			
Montcalm. . . . .	5	1	15,340
Monmouth. . . . .	5	2	15,400

DOMINION LINE.

To Liverpool—			
Laurentic . . . . .	6	4	27,240
Megantic . . . . .	5	4	27,240
Welshman. . . . .	1	4	46,920
Dominion. . . . .	6	4	40,985
Canada . . . . .	6	4	47,915
Ottawa . . . . .	4	2	27,410
To Bristol—			
Manxman. . . . .	4	3	54,480
Turcoman . . . . .	5	4	38,440
Englishman. . . . .	5	4	37,600
Cornishman . . . . .	4	2	28,560

DONALDSON LINE.

To Glasgow—			
Parthenia. . . . .	6	4	16,000
Athenia. . . . .	6	4	16,122
Lakonia . . . . .	6	4	14,526
Cassandra . . . . .	6	3	7,770



SESSIONAL PAPER No. 15a

NUMBER of Sailings of Steamers from Montreal and Quebec, &c.—*Concluded.*

THOMSON LINE.

Name of Steamer.	Number of Sailings.	Number of Chambers.	Capacity in Cubic Feet.
To London—			
Cervona .....	5	4	15,320
Devona .....	5	3	21,953
Hurona .....	5	4	20,487
Iona .....	5	4	18,472
Cairnrona .....	6	6	20,424

MANCHESTER LINERS.

To Manchester— Manchester Trader .....	5	1	3,000
-------------------------------------------	---	---	-------

ELDER-DEMPSTER LINE.

To South Africa—			
Canada Cape .....	2	5	66,000
Bendu .....	1	2	9,000
Melville .....	2	4	59,647
Benin .....	1	1	9,000

SUMMARY.

	Number of Sailings.	Cubic Feet.
To Liverpool .....	76	2,067,510
To London .....	57	984,853
To Glasgow .....	53	939,422
To Bristol .....	28	866,060
To Manchester .....	5	15,000
To South Africa .....	6	269,294
Totals .....	225	5,142,139



1 GEORGE V., A. 1911

COOLED AIR SERVICE, 1909.

The following steamships with cooled air service sailed from the port of Montreal during the season of 1909:—

Name of Steamer.	No. of Sailings.	Cubic feet space.
Allan line—		
Pomeranian .....	5	26,000
Hibernian .....	2	45,540
Ontarian .....	3	19,000
Sardinian .....	5	17,600
Canadian Pacific line—		
Montcalm .....	5	18,668
Monmouth .....	5	19,443
Dominion line—		
Canada .....	6	46,904
Turcoman .....	5	40,491
Englishman .....	5	18,617
Manxman .....	4	41,585
Thomson line—		
Iona .....	5	80,178
Cervona .....	5	97,530
Hurona .....	5	79,707
Devona .....	5	97,574
Cairnrona .....	6	76,739

SUMMARY.

	No. of sailings.	Cubic feet space.
To Liverpool.....	6	281,424
To London .....	41	2,601,459
To Bristol.....	24	652,435
Totals.....	71	2,535,318



SESSIONAL PAPER No. 15a

THERMOGRAPHS PLACED IN STEAMSHIPS.

From Montreal and Quebec.	WHERE PLACED IN STEAMSHIP.		
	Cold Storage.	Cooled Air.	Ordinary Storage.
	Times.	Times.	Times.
<i>Placed with</i>			
Butter and lard.. . . . .	7		
Butter and cheese. . . . .	1		1
Butter. . . . .	27		
Cheese. . . . .	6	19	103
Fruit. . . . .	11		
Meats . . . . .	32	4	3
Frozen salmon. . . . .	5		
Butter and meats . . . . .	13		
Cheese and meats. . . . .	10	28	79
Apples and meats. . . . .	7	1	2
Apples and cheese. . . . .	1	4	18
Apples and pears. . . . .	14		
Apples. . . . .	2		53
Total . . . . .	136	56	259
From Halifax—			
Apples . . . . .	1		19
Apples and cheese. . . . .	1		2
Grand total. . . . .	138	56	280



BUTTER TEMPERATURES ON BOARD STEAMSHIPS.

During the season of navigation of 1909 the cargo inspectors at Montreal tested the temperatures of 368 packages of butter as these were being loaded into the steamers, each package being marked so as to enable the inspector at the port of discharge to get the temperature of the same package as soon as it was unloaded from the steamer. The temperatures for each line have been averaged by the season, and the results are shown in the following table:—

Steamship Line.	Number of Sailings with Butter.	Number of Packages Tested.	Average Temperature at Montreal.	Average Temperature at Port of Discharge.	Increase in Temperature.	Reduction in Temperature.
			Deg.	Deg.	Deg.	Deg.
Montreal to Bristol—						
C. P. R. ....	3	40	29.2	19.8	.....	9.4
White Star—Dominion. ....	10	108	32.3	21.9	.....	10.4
General average .....			31.5	21.3	.....	10.2
Montreal to Glasgow—						
Allan .....	12	62	33.9	21.2	.....	12.7
Donaldson... ..	4	17	27.2	21.6	.....	5.6
General average.. ..			32.4	22.7	.....	9.7
Montreal to Liverpool—						
White Star—Dominion... ..	6	21	35.5	19.2	.....	16.3
Allan.....	4	22	39.7	31.9	.....	7.8
General average.....			37.6	25.7	.....	11.9
Montreal to London—						
Thomson ... ..	12	82	36.9	22.9	.....	14.0
Allan .....	1	5	27.4	23.2	.....	4.2
General average.....			36.3	22.9	.....	13.4
Montreal to Manchester—						
Manchester Liners .....	2	11	28.8	33.5	4.7	.....

SHIPMENTS of Perishable Products in Cold Storage and Cooled Air from the Port of Montreal, Season 1909 (U.S.A. products included).

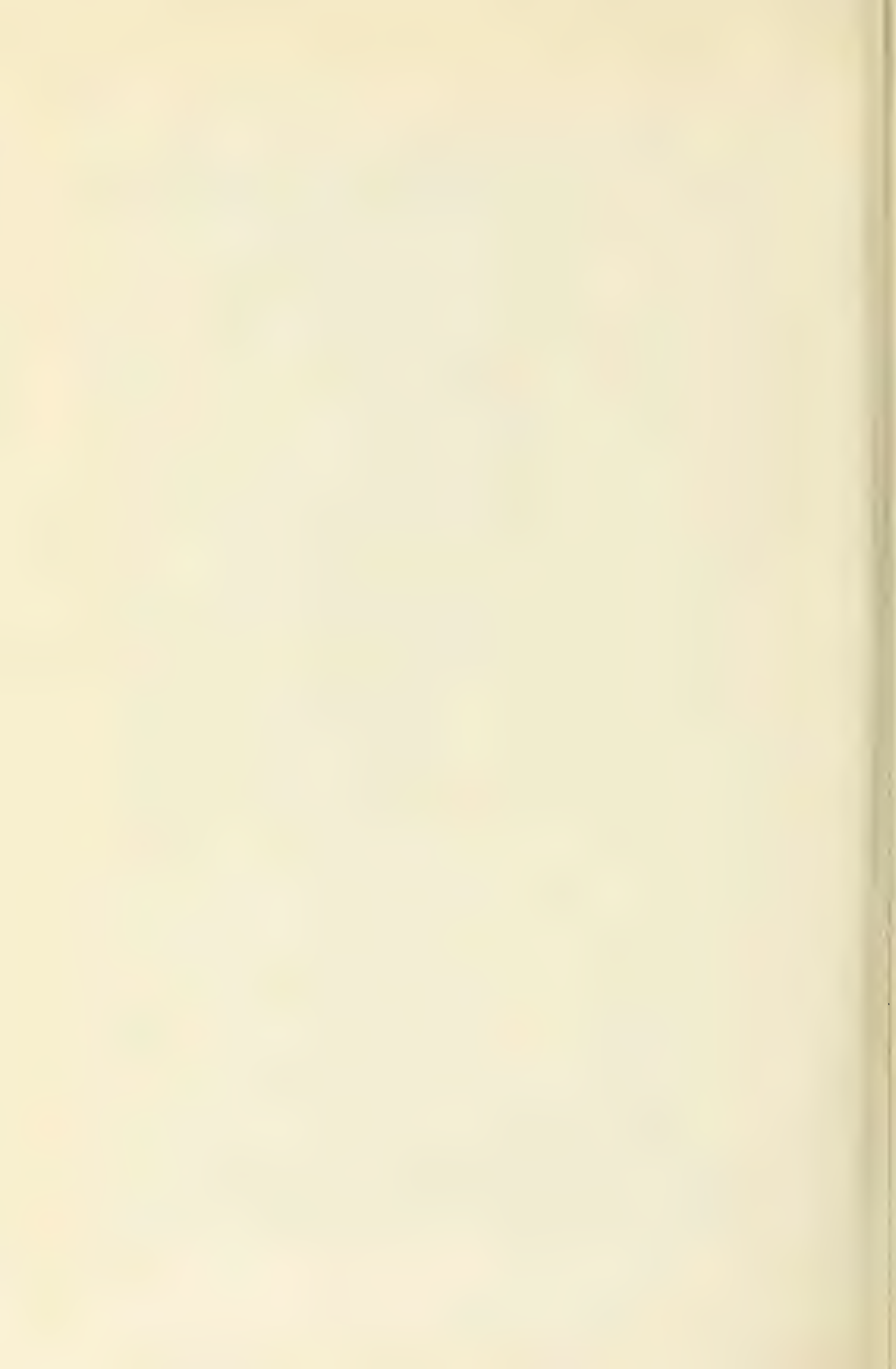
	In Cold Storage.	In Cooled Air.
Apples (bbls.) Canadian.....	5,138	2,447
" (boxes) " .....	3,304	.....
Butter (pkgs.) " .....	39,218	79
Cheese (boxes) " .....	.....	268,470
Meats " " .....	10,906	10,689
" " U.S.A. ....	43,107	3,689
Lard (pkgs.) " .....	16,026	.....
Tender fruits (boxes) Canadian.....	10,846	.....
" " U.S.A. ....	27,274	.....
Beef (quarters) Canadian .....	341	.....





Loading Nova Scotia Apples in Vans for Market, Victoria docks, London.



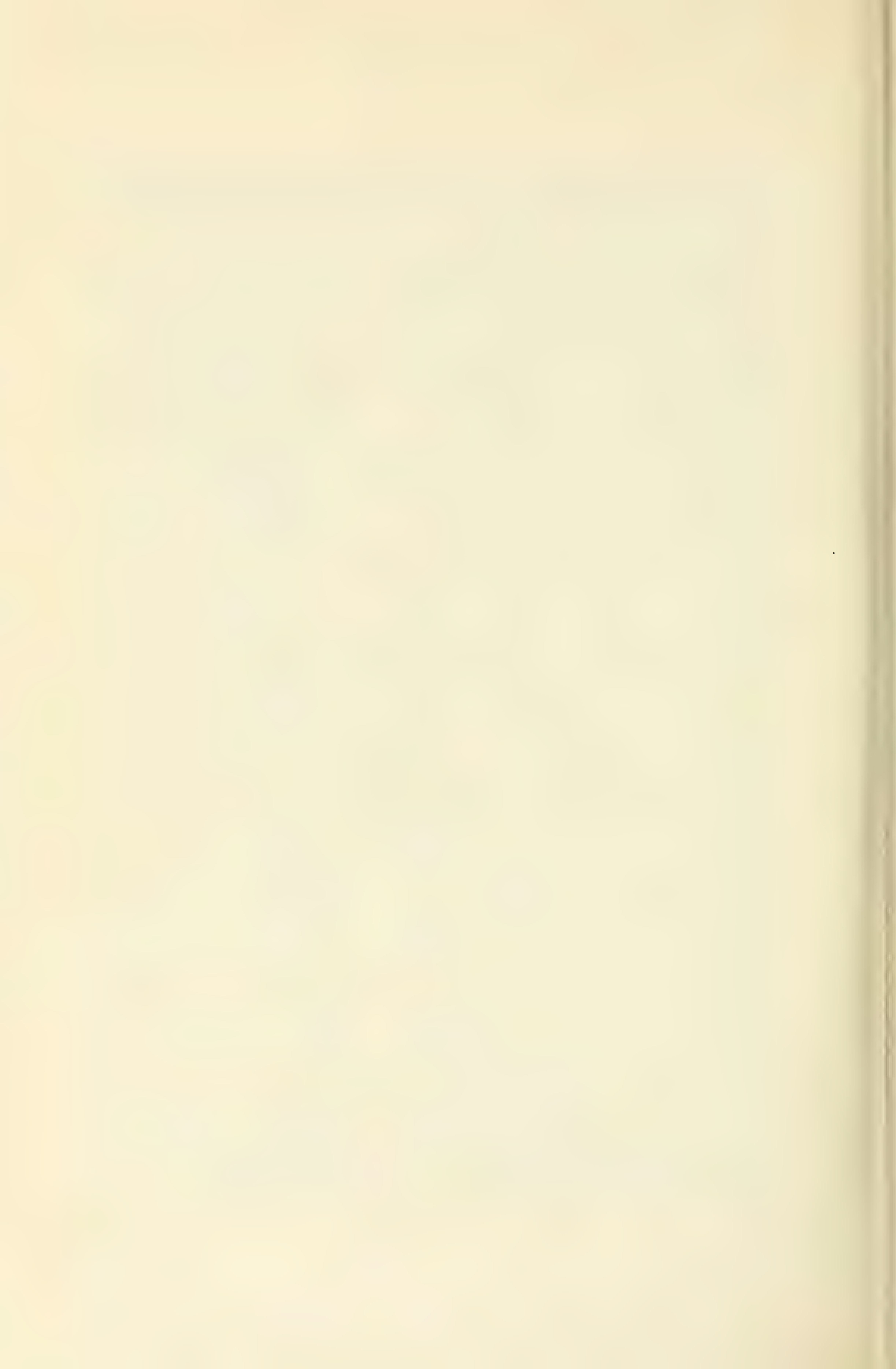






Landing and Warehousing Nova Scotia Apples from River Barges, London.







## SESSIONAL PAPER No. 15a

SHIPMENTS of Perishable Products in Cold Storage and Cooled Air from the Port of  
Montreal, Season 1909 (U.S.A. products included).

	In Cold Storage.	In Cooled Air.
Apples (boxes) Canadian.....		51
Cheese " ".....		4,683
Meats " ".....	212	738
" " U.S.A.....	5,619	4,192







## INDEX.

	PAGE.
Acknowledgements.. . . . .	9
Branch, development of the.. . . . .	8
Cold Storage.. . . . .	5
Dairying.. . . . .	3
Fruit.. . . . .	4
Markets, Extension of.. . . . .	4
Meetings.. . . . .	6
Publications.. . . . .	7
Staff, the.. . . . .	7

## PART I.—DAIRYING.

Aeration of milk, experiments in.. .. .	72
Assistant Dairy Commissioner's report.. .. .	22
Colleges and schools visited.. .. .	25
Factory inspection.. .. .	25
Manitoba, trip to.. .. .	24
Meetings attended.. .. .	22
Office work.. .. .	26
Rotation of crops.. .. .	23
Summary.. .. .	22
Winnipeg, visit to.. .. .	25
Butter—	
Exports of.. .. .	19
Imports into United Kingdom.. .. .	18
Referee, report of official.. .. .	17
Casein, the demand for.. .. .	14
Chapais, report of Mr. J. C.. .. .	22
Cheese—	
Dating.. .. .	17
Exports of.. .. .	19
Imports into the United Kingdom.. .. .	18
Referee, report of official, at Montreal.. .. .	16
Cheesemaking, care of milk for.. .. .	72
Consumption, volume and increase of home.. .. .	13
Cow Testing—	
Cash, what it means in.. .. .	30
Feed records.. .. .	67
Gains from, some definite.. .. .	57
General.. .. .	28
Makers and factory owners should be interested.. .. .	30
Milk, cost of.. .. .	69
Movement, the.. .. .	27
Prince Edward Island, increased interest in.. .. .	29
Records should be kept for complete year.. .. .	29
Records and comparisons—	
Fat, yield of, average by provinces.. .. .	53
British Columbia.. .. .	43
Manitoba.. .. .	52
New Brunswick.. .. .	50
Nova Scotia.. .. .	47
Ontario.. .. .	32
Prince Edward Island.. .. .	48
Quebec.. .. .	40
Weighing, daily, and larger yields.. .. .	31
Yields, average monthly.. .. .	53



	PAGE.
Cream, export of, to United States.. . . . .	14
Experiments in the Cooling and Non-aeration of Milk for cheesemaking.. . . . .	72
Acknowledgments.. . . . .	82
Butter fat, loss of, in the whey.. . . . .	79
Cheese, yield of.. . . . .	79
Curds, condition of, in the vats.. . . . .	77
Curd tests.. . . . .	73
Gas-producing bacteria in cheese from milk treated differently.. . . . .	82
Summary.. . . . .	82
Temperature of milk when delivered at the factory.. . . . .	74
Temperatures, night, effect of on condition of milk.. . . . .	76
Export of cream to United States.. . . . .	14
Exports of cheese and butter.. . . . .	19
Exports of dairy products 1909 and 1910, value of.. . . . .	20
Glassware for milk testing should be verified.. . . . .	17
Manitoba, Assistant Dairy Commissioner's report of a trip to.. . . . .	24
Milk—	
Cooling and non-aeration of, experiments in.. . . . .	72
Cost of.. . . . .	17
Test glassware should be verified.. . . . .	17
Weighing of, daily, and larger yields.. . . . .	31
Yields, average monthly.. . . . .	53
New Zealand competition.. . . . .	13
Prince Edward Island, increased production in.. . . . .	14
Production in west not sufficient for local markets.. . . . .	15
Referee of butter and cheese, official.. . . . .	15
Rotation of crops.. . . . .	24
Season of 1909.. . . . .	13
Statistics of exports of cheese and butter.. . . . .	19
United States, export of cream and casein to.. . . . .	14
Western provinces, increased production in.. . . . .	14

## PART II.—EXTENSION OF MARKETS.

Acknowledgments.. . . . .	123
Apples—	
Bristol cargo inspector's report on.. . . . .	112
Canadian, reputation of, season of 1909-10.. . . . .	101
Canned, Glasgow cargo inspector's report on.. . . . .	109
Experimental storage.. . . . .	86
Export trade in.. . . . .	97
Glasgow cargo inspector's report on.. . . . .	109
Liverpool and Manchester inspector's report on.. . . . .	104
Nova Scotia, Glasgow cargo inspector's report on.. . . . .	110
Nova Scotia, London cargo inspector's report on.. . . . .	105
Shipments of, from Canadian ports.. . . . .	97
Bacon—	
Chief cargo inspector's report on.. . . . .	102
London inspector's report on.. . . . .	105
Liverpool and Manchester inspector's report on.. . . . .	104
Bacon and meats, Glasgow cargo inspector's report on.. . . . .	109
Bulletin No. 1, revision of.. . . . .	86
Bristol cargo inspector's report.. . . . .	111
Broker's charges on Canadian fruit.. . . . .	98
Butter	
Bristol cargo inspector's report on.. . . . .	111
Chief cargo inspector's report on.. . . . .	102
Glasgow cargo inspector's report on.. . . . .	108
London inspector's report on.. . . . .	105



## SESSIONAL PAPER No. 15a

Butter—*Continued*.

Liverpool and Manchester inspector's report on.. . . . .	103
Temperatures.. . . . .	91
Trade, export.. . . . .	91
Trade, letters from importers.. . . . .	92
Transportation.. . . . .	112
Cargo inspection.. . . . .	86
Cargo inspectors in Great Britain, reports of.. . . . .	101

## Cheese—

Boxes, London's cargo inspector's report.. . . . .	105
Boxes, Prince Edward Island, breakage of, during transit.. . . . .	85
Bristol cargo inspector's report on.. . . . .	111
Chief cargo inspector's report on.. . . . .	102
Glasgow cargo inspector's report on.. . . . .	107
Liverpool and Manchester inspector's report on.. . . . .	103
London cargo inspector's report on.. . . . .	105
Trade, export.. . . . .	92
Letters from merchants in Great Britain.. . . . .	93

## Eggs—

Bristol cargo inspector's report on.. . . . .	112
Chief cargo inspector's report on.. . . . .	103
Glasgow cargo inspector's report on.. . . . .	108
Liverpool and Manchester inspector's report on.. . . . .	103

## Fruit—

Boxed, reduced ocean freight rate on.. . . . .	85
Brokers' charges on.. . . . .	98
Marketing of, London inspector's report on.. . . . .	106
Trade, export.. . . . .	96
Trade, letters from broker's and merchants <i>re</i> .. . . . .	98
Fruit Marks Act, London inspector's report on.. . . . .	106
Glasgow cargo inspector's report.. . . . .	107
Inspection of cargoes.. . . . .	86
Inspection and Sale Act, London inspector's report on.. . . . .	106
London cargo inspector's report.. . . . .	105
Liverpool cargo inspector's report.. . . . .	101
Liverpool and Manchester cargo inspector's report.. . . . .	103

## Meats—

Bristol cargo inspector's report on.. . . . .	112
Frozen, Liverpool and Manchester inspector's report on.. . . . .	103
Glasgow cargo inspector's report on.. . . . .	109
Manchester and Liverpool cargo inspector's report.. . . . .	103
Pears, Glasgow cargo inspector's report on.. . . . .	111

## Poultry—

Chief cargo inspector's report on.. . . . .	103
Liverpool and Manchester inspector's report on.. . . . .	104
Prince Edward Island cheese boxes, breakage of.. . . . .	85
Price investigations.. . . . .	90
Steamship companies, relations with.. . . . .	88
Steamship freight rate on fruit reduced.. . . . .	85
Temperatures of Quebec and Ontario butter.. . . . .	91

## Thermographs—

Bristol cargo inspector's report on.. . . . .	112
Liverpool and Manchester inspector's report on.. . . . .	104
London inspector's report on.. . . . .	105

## PART III.—FRUIT.

Apple growing in Nova Scotia.. . . . .	138
Apple orchards, winter, decline of in Essex and Kent.. . . . .	137
Apples, exaporated.. . . . .	137
Box packing demonstrations.. . . . .	140



	PAGE.
British Columbia, the Act well observed in.. . . .	128
Chatham Co-operation Association.. . . .	138
Contracts, want of definiteness in.. . . .	134
Contract with intent to deceive.. . . .	134
Convictions in 1909-10.. . . .	131
Co-operative association, Chatham.. . . .	138
Co-operative associations in Nova Scotia.. . . .	140
Crop reports.. . . .	134
Essex and Kent Counties, decline of winter apple orchards in.. . . .	137
Essex truck and early fruit farms.. . . .	138
Evaporated apples.. . . .	137
Fruit Marks Act, enforcement of.. . . .	127
Grading, large operators' difficulties in.. . . .	133
Grading, principals held responsible for their subordinates.. . . .	134
Imported fruit correctly marked.. . . .	128
Inspection at the point of production.. . . .	128
Inspection and Sale Act, Part IX, enforcement of.. . . .	127
Inspection statistics.. . . .	131
Kent County, decline of winter apple orchards in.. . . .	137
Lake Huron district, the crop in the.. . . .	136
Lake Huron district, quality and grading in.. . . .	127
Meetings, fruit.. . . .	137
Meetings in Prince Edward Island.. . . .	140
Nova Scotia—	
Clean culture.. . . .	139
Conditions in.. . . .	128
Co-operative associations.. . . .	140
Orchard practice, improvement in.. . . .	139
Spraying, improvement in.. . . .	139
Storehouses.. . . .	140
Varieties for.. . . .	139
Packing, box.. . . .	140
Prince Edward Island meetings.. . . .	140
Prices.. . . .	135
Quantity of fruit stored.. . . .	136
Season, peculiarities of the.. . . .	127
Storage, quantity of fruit in.. . . .	136
Weather conditions for 1909-10.. . . .	135
West, improvement in quality of fruit going to the.. . . .	128

## PART IV.—COLD STORAGE.

Bonuses for creamery cold storages.. . . .	147
Butter—	
Iced car service for.. . . .	148
Temperatures on board steamships.. . . .	154
Cheese, iced car service for.. . . .	148
Cold storage and cold stored foods, prejudice against.. . . .	146
Cold storage accommodation on steamships sailing from Montreal and Quebec.. . . .	150
Cooled air service on steamships, 1909.. . . .	152
Cost of living, effect of cold storage on.. . . .	145
Creamery cold storage, bonuses.. . . .	147
Fruit—	
Cold storage chambers on steamships for.. . . .	149
Iced car service for.. . . .	148
Industry, the cold storage.. . . .	146
Prices, effect of cold storage on.. . . .	146
Railways, iced car services on.. . . .	148
Shipments in cold storage and cooled air from Montreal and Quebec.. . . .	154



## SESSIONAL PAPER No. 15a

## Steamships—

Butter temperature on board.. . . . .	154
Cold storage chambers for fruit.. . . . .	149
Cold storage accommodation on, sailing from Montreal and Quebec.. . . . .	150
Cooled air service, 1909.. . . . .	152
Shipments of perishable products in cold storage and cooled air.. . . . .	154
Thermographs placed in.. . . . .	153
Subsidies for cold storage warehouses.. . . . .	147
Thermographs placed in steamships.. . . . .	153
Warehouses, subsidies for.. . . . .	147





